

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 617 (No. 43, Vol. XII.)

OCTOBER 21, 1920

[Weekly, Price 6d.
Post free, 7d.]

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:

United Kingdom .. 30s. 4d. Abroad.. .. 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

* European subscriptions must be remitted in British currency

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EDITORIAL COMMENT

It has not emerged from the proceedings of last week's Air Conference with whom lay the inception of the idea. Whether it was with Mr. Winston Churchill himself, with Sir Hugh Trenchard, or the Controller-General of Civil Aviation, does not particularly matter, save that we could wish to be able to express the thanks of all who are interested in the development of aviation, civil or military, in a more personal manner than is possible without precise knowledge of who really conceived the Conference. The main point is that it was conceived, and that it was even more successful than the most sanguine could have expected. In advance we expressed the view that such a Conference as was outlined in the Air Ministry's announcement must be productive of enormous good to the movement, provided it was conducted on non-pedantic lines, was open to full discussion, and, most important of all, was thrown open to full and unrestricted publicity of its proceedings and conclusions. All these condi-

tions were most fully met. The papers were, without exception, ably reasoned and fully illuminating of the phases of the subject to which they were devoted. The discussions were, generally speaking, helpful, and avoided the errors into which such discussions too often lead those taking part in them. Naturally, as must always happen in such proceedings, some things were said that were the reverse of helpful and some that were frankly silly, having regard to the occasion, but it is impossible always to rule out the crank and the self-opinionated. In fact, it is perhaps doubtful if it would be always wise to try, since they provide a sort of anti-climax which serves to throw into greater relief the more sensible reasoning of people who know their subject and its limitations.

Although the Conference was called and conducted by the Air Ministry, there was an almost complete absence of any "official" atmosphere. It was a gathering of earnest business men—and in the term we include the representatives of the Ministry—meeting together in the full knowledge that they were to discuss the affairs of a movement and an industry standing in peril through a want of general understanding of its needs and in the sincere desire to find ways and means of assisting it to develop out of its present indeterminate position.

And it must be conceded that the Conference did excellently well in the pursuit of its task. No more hopeful gathering has ever been held in connection with aviation in England or one from which we are justified in expecting such results. Not alone were the proceedings all that we could ask, but the close attention with which they were followed and the real interest manifested by the Press were of the happiest augury for the future. We whole-heartedly congratulate everyone concerned on the high degree of success attained and on the work of the Conference in clearing up many points which have hitherto been obscure and uncertain.

The Government and Civil Aviation

It has been the complaint of those interested in the development of the civilian side of aviation that the Government has apparently no policy in regard to the future. It has promised much and performed almost literally nothing in so far as concerns the direct assistance to the move-

ment which it was believed was to be forthcoming after the end of the War. In opening the proceedings of the Conference, Mr. Churchill informed the guests that "the Government intend to help civil aviation by every means in their power." We do not desire to cavil at the wording of the announcement, but we cannot refrain from remarking that it seems as though we had heard something of the sort before.

However, we believe that at last the Government does realise the vital consequence to the Empire of air power, not of necessity military air power, but the real supremacy of the air denoted by the possession of a strong and healthy mercantile air fleet, capable as to its *personnel*, at least, and in great part as to its material, of being turned at almost a moment's notice from the purposes of peaceful commerce to those of the defence of the Empire. The complete realisation of the bearing of air power on the future existence of the nation and the Empire is the first and most essential step towards the building-up of the supremacy to which we must aspire, and if we predicate that this does exist in the minds of the Government, the rest is only a matter of detail application of ways and means. It was to the study of these that the Conference principally turned its attention during its consideration of the civilian side of aerial transport. The opinions of the Conference seem to have turned towards the carriage of mails as the first step to be taken in the encouragement of the aerial transport movement. As our readers are aware, *FLIGHT* has for a considerable time been urgent in its advocacy of transferring all first-class mail matter addressed to European countries to the companies carrying on aerial services with the Continent. Undoubtedly, this would prove of the greatest assistance to these companies directly and to the whole movement as a collateral consequence. It has the essential merit that it can be done without delay and would constitute the first real step towards proper encouragement. But this by itself is not enough. The question is not at all one of supporting an industry which was virtually created during the War for war purposes and which has now been allowed to languish almost to the point of virtual extinction. On the contrary, and as we have so often insisted—and as the Government now appears to realise—this is a matter which is absolutely vital to the State, which is faced with the problem of either creating an enormously powerful and expensive active Air Force, which we cannot for the time afford and which would be a questionable diversion of public money if we could, or of entering upon a sane, sound policy in relation to the civil side of aviation to the end that not only may the country and the Empire be able to take a lead in the development of the new transport, but may at the same time build-up a powerful reserve to the active fighting Force, available at once in case of another great war being forced upon us.

There can be no two opinions as to which of the two is the proper policy to be adopted. Nor is there room for any doubt as to the inadequacy of mail contracts by themselves to build and sustain aviation until it can stand by itself. On the first day of the Conference there was a good deal of talk about the evil of subsidies to industry. It was even said that our Government never gave subsidies for new developments even when national interests were involved. That is certainly not strictly true. In the early days of submarine telegraphy the Government subsidised the cable companies. It lent the Cunard Co. a million sterling to build the *Mauretania* and

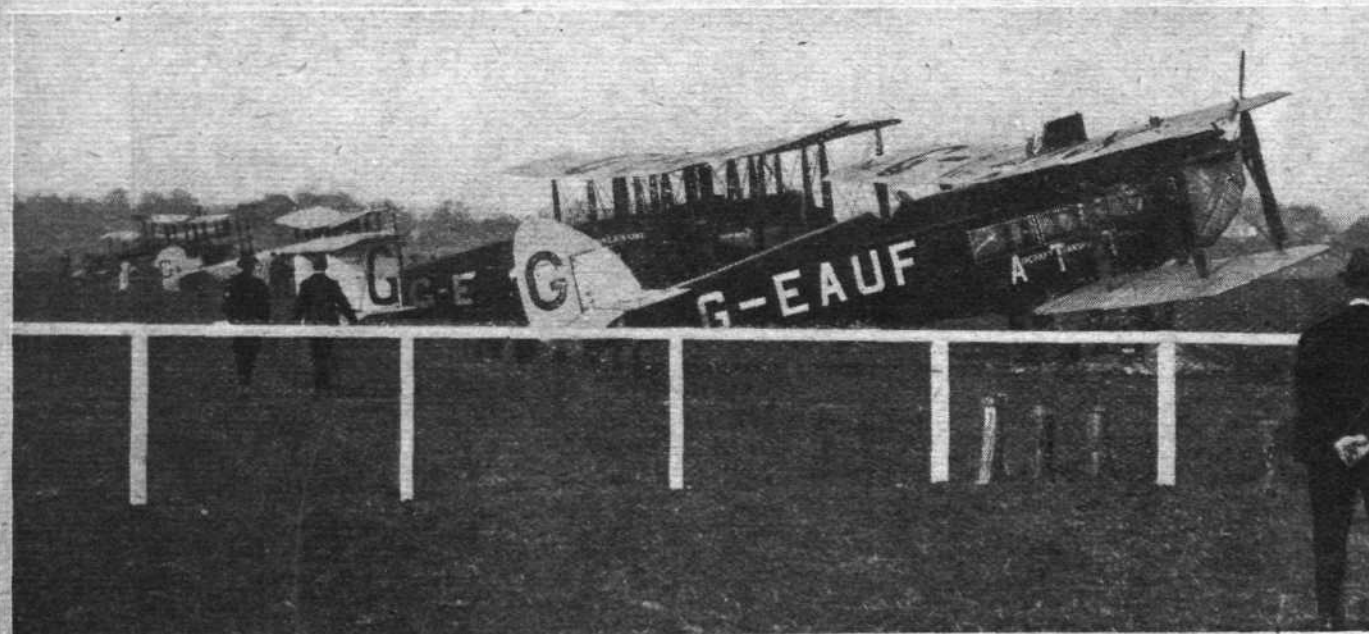
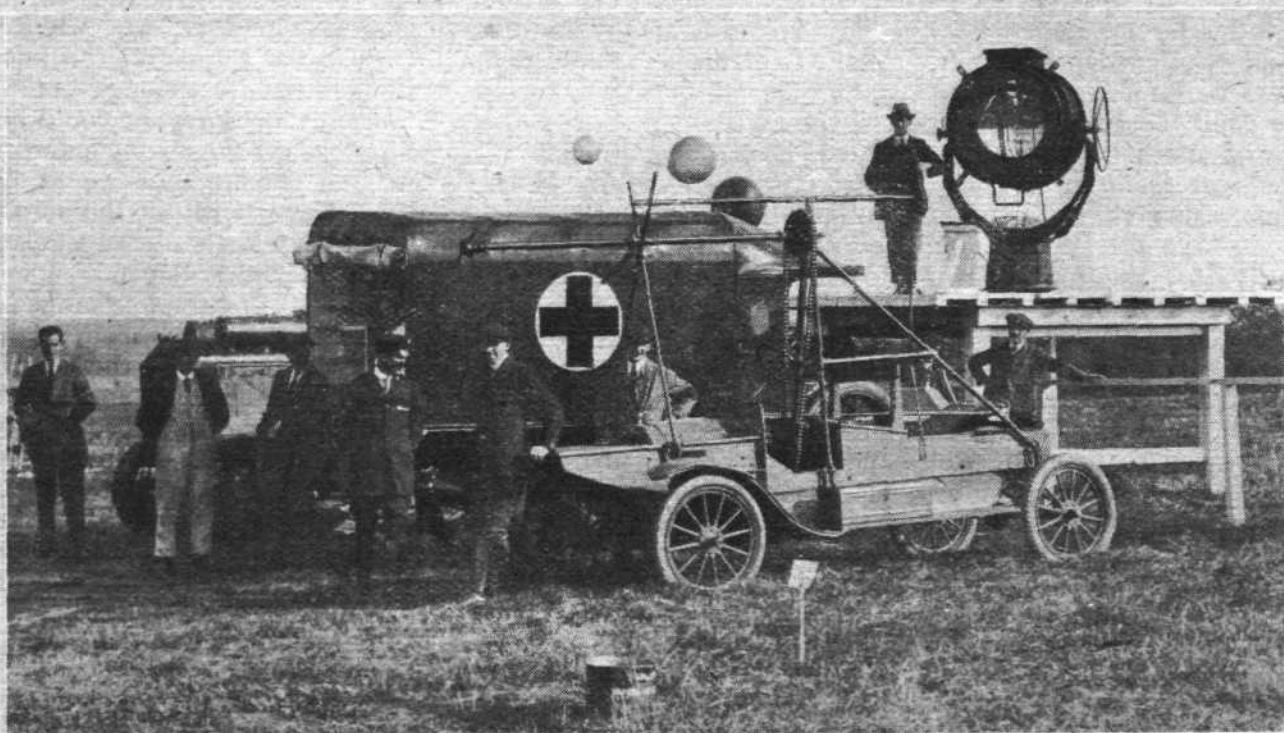
Lusitania to win back the blue ribbon of the Atlantic which had been wrested from us by subsidised German ships. It has subsidised the Far Eastern mail services. These are but a few examples of the way in which the State has at various times come to the assistance of private enterprises where these have been to the national advantage. Therefore, no precedent would be created by the subsidising of civil aviation, but even were it a question of doing something which had never been done before we should still lay it down that new conditions call for new departures, and that in the case of aviation the circumstances more than justify such a departure.

As to the form the suggested subsidy, or as one speaker put it, what's the matter with the Government undertaking to make up a "deficit"—should take, this is perhaps a question for debate. One suggestion is that the Government should pay to approved aerial transport companies, for a term of years sufficient to set them going, a subsidy of 25 per cent. of their gross earnings. This ought to suffice and would certainly be a stimulus to competition.

Construction Must be Encouraged

There is a point in connection with this question of encouragement which seems to be too often ignored. We speak of encouraging transport companies by awarding mail services and by giving subsidies, but we have to remember that it is just as essential to encourage the designer and constructor. In fact, it is hardly saying too much to lay down, as was emphasised again and again during the Conference, that in so far as the real development of aviation is concerned, the designer and the constructor must play an even more important part than the operating company. We may accept it as practical that the aeroplane of today is sufficiently advanced to serve for a considerable time, with no more than detail improvements, as a vehicle of aerial transport. If encouragement were to be extended only to operating concerns, it might easily be the case that improvement and progress in design would stagnate. We do not say that this would necessarily be the case, but the possibility is there.

The most deplorable aspect of the state into which the industry has been allowed to fall since the end of the War lies in the wholesale distribution to the four winds of the skilled designing staffs which were collected together by the great manufacturing firms during the period of hostilities. One of the first essentials to a recovery of our air supremacy is that these should be restored, at least in great part, to the places they held at the Armistice. Only by this means can the rate of progress in design and construction to which the War accustomed us be maintained. One consequence of this disbanding of the brains of the industry emerged during the Conference when Sir Frederick Sykes told the guests that Germany has obtained a distinct ascendancy in the construction of the all-metal machine. If we are to regain and hold the supremacy in design and in numbers with which we finished the War, it is perfectly clear that any scheme of support by the State must include substantial assistance to the constructive as well as the operative side of the industry. Exactly what basis should be adopted is a matter to be settled by the experts of the Air Ministry and the industry between them. It is one with which we do not intend to interfere for the present, further than to emphasise the urgent necessity of including it in any consideration of encouragement measures.



AIR CONFERENCE VISIT TO WADDON: The upper photo. shows in the foreground a B.A.T. Commercial machine owned by the Instone Air Line and other machines in line. The centre photograph shows the aerodrome ambulance and other useful accessories, and in the lower picture are seen: Airco 18, Instone Vickers Vimy-Commercial, Westland Limousine, Avro triplane, and Bristol Coupé

**The
Bearing
on
Defence**

The problems of Imperial air defence are so intimately bound up in the broad question of encouragement of civil aviation that they automatically include themselves in any discussion of the subject. Therefore, it was only to be expected that the thread of defensive requirements should have run through the warp of the Conference discussions. The subject has been thrashed out from every possible point of view so often in *FLIGHT* that there is little or no need to elaborate the obvious. There is one point, however, to which we feel we must refer with some little satisfaction. That is, the change in the attitude which was apparent towards the basic question of whether our defensive preparations should take the shape of maintaining a strong and costly active Air Force or, alternatively, depend upon a powerful mercantile air fleet for the expansion of the fighting arm in case of war. Hitherto, Sir Hugh Trenchard has been credited with the belief that in the former policy lay the best solution of the problem of adequate defence. At the Conference, however, he expressed the belief that our fighting Service could be best expanded from the civil side, in case of another great war. He was, it may be observed, careful to qualify his expression of opinion by emphasising that he referred to another first-class war. We agree with his implied point of view. Obviously, for the purposes of the small policing wars which an Empire like our own must almost always be engaged upon, we must keep an adequate fighting Air Service. To depend upon the mobilisation of civilian resources every time we have one of these little affairs on hand would be cumbrous, costly from every point of view, and would be an invitation to disaster on a small scale. We have been the most consistent advocates of what may properly be called a nucleus active arm, backed up by a very powerful reserve created from civilian air enterprise,

always with an eye to the possibility that at some future time we may have suddenly thrust upon us another great struggle like the last. We have never held or put forward the view that *all* our wars should be waged by the civil side, with a tiny regular force to supply commands and administrative services. That would be military madness. It is just as well that the Chief of the Air Staff has emphasised the point of view, though he did not specifically elaborate it in detail, in order that opportunity might be given for a clear enunciation of military policy later on.

Airships

We confess to some feeling of disappointment that the position regarding the airships was not completely cleared up by the Conference. The paper read by Sir Trevor Dawson and the ensuing discussion were extremely interesting, even if they added little to our knowledge of the capacity and the limitations of the big airship. What did not emerge, however, was what we are really doing to utilise the ships and the knowledge we possess. Sir James Stevenson certainly surprised us when he said that if anyone could be found to run these ships as a commercial enterprise the Air Ministry and the Government would be very pleased to hand them over with all the aerodromes, landing grounds, and so forth on very reasonable terms. Something, of course, depends upon what the respective definitions of reasonable terms may be. We have been under the impression, rightly or wrongly, that the terms offered by the Government in the matter of these airships have not been reasonable in the view of those who have been negotiating for them. It is to be hoped that what took place at the Conference may have assisted to clear the air, and that before long the Ministry will be able to announce that the ships are to be put into commercial commission without delay.



AIR CONFERENCE VISIT TO WADDON : Our group shows : Mr. Bonar Law, Lord Weir, General Sykes, Sir James Stevenson, and General Ellington, with one of the Aircos as a "background"



IN our last week's issue we were able to publish a brief report on the proceedings of the Air Conference on the opening day, with synopses of all the papers read before the Conference and a full report of the paper read by Mr. White-Smith, Chairman of the S.B.A.C. On the second day of the Conference, October 13, the morning session was opened with a paper by Air Vice-Marshal Sir E. L. Ellington, entitled "The present Position of Aircraft Research and Contemplated Developments." Lord Weir of Eastwood took the Chair. The contents of this paper, which was followed by a discussion, we hope to publish in a subsequent issue of *FLIGHT*. At the conclusion of the discussion the members of the Air Conference were conducted to London Bridge station by motor-buses, whence they proceeded to Waddon by special train. Two large rigid airships, the R.32 and the R.33, hovered overhead while members of the Conference were being conveyed to the station, and when the train came out of London Bridge station the airships were still overhead, escorting the train the whole journey to Waddon. The manner in which the two airships kept to the pace of the train gave one an excellent idea of the skilful handling they were receiving by their crews, every little twist and turn of the train around curves being reproduced by the airships above. Arrived at Waddon station the airships hovered around while the visitors got into the series of 'buses waiting to take them to the aerodrome, and again escorted them to the aerodrome. One was informed that the R.33 had by this time been up for more than thirty hours, and she still had the return trip to her base to make.

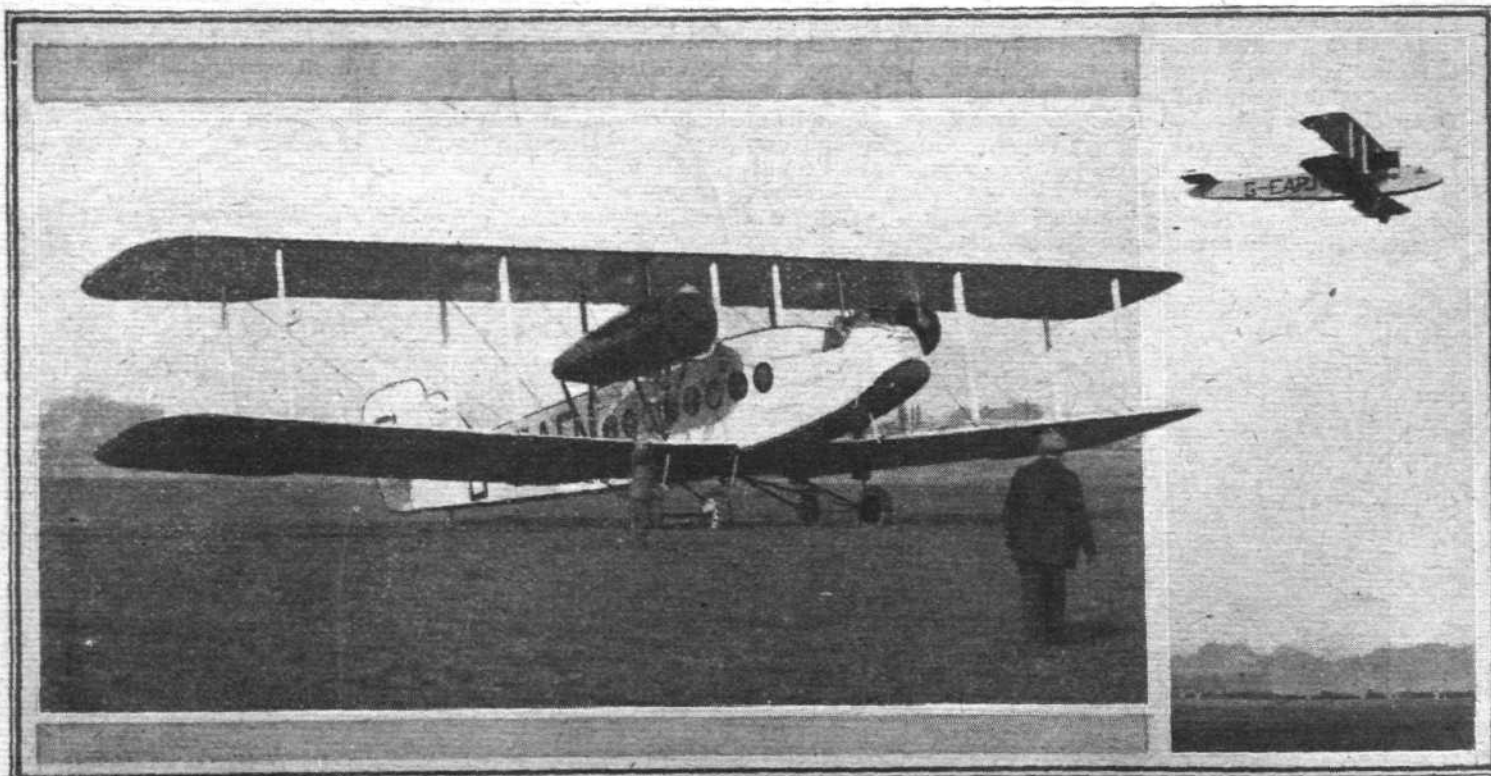
Immediately on arrival at the Waddon aerodrome the visitors were entertained at luncheon by the Air Ministry, after which the visitors were divided into parties and were conducted over the air station to inspect the ground organisation of a modern terminal aerodrome. By the courtesy of various owners of commercial machines a number of visitors were given passenger flights in different types of cabin machines.

Croydon is a State-owned Customs aerodrome under the direction of the Controller-General of Civil Aviation, and is the London Continental air terminus. Here aircraft entering or leaving this country can obtain a Customs clearance as do ships at sea ports.

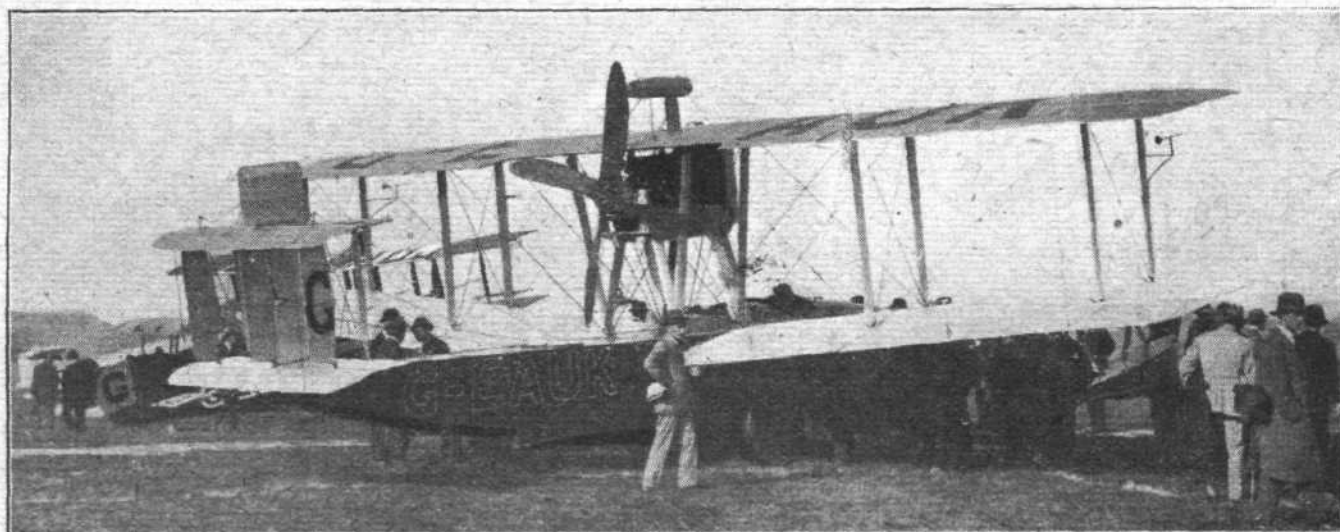
Notice boards situated near the Customs Office give full details of machines due to arrive or depart during the day, of those actually in transit and of the times at which these latter pass over Lympne Aerodrome on their way to or from the Continent. A medical orderly is continuously on duty in the fully equipped first-aid dressing station, and the services of a medical practitioner are available at very short notice.

The aerodrome is under the immediate control of a Civil Aviation Traffic Officer, who is helped by two Assistant Officers, Wireless, Meteorological and other Staff.

On the west side of Plough Lane are hangars, workshops, technical stores, petrol stores, &c. Certain of these buildings are rented by Aircraft Transport and Travel, Ltd., Instone and Co., Ltd., Compagnie des Messageries Aériennes,



AT WADDON: The Handley Page W8, winner of First Prize in Air Ministry Competition. Inset: The machine arriving at Waddon


AIR CONFERENCE AT WADDON : The Vickers " Viking III " Amphibian

Compagnie des Grandes Express Aériennes, Air Post of Banks, Ltd., and William Beardmore, Ltd.

On the east side of Plough Lane is a garage and a residential hotel established in Government buildings by Messrs. Trust Houses, Ltd. Dining-room and lounge are open to the public and hot meals are available on the arrival of aeroplanes from the Continent.

Along the main entrance road to the departure station are various plots occupied by the offices of the following companies: Aircraft Transport and Travel, Ltd., Compagnie des Grandes Express Aériennes, William Beardmore, Ltd., S. Instone and Co., Ltd., Basil S. Foster, Ltd., and American Express Co., Ltd.

The Customs Office is a fully-equipped Customs Clearance Station where two officers of His Majesty's Customs are in constant attendance to clear all outgoing and incoming aircraft. The officer on duty also acts as Aliens Officer for the examination of passports. On arrival from abroad a machine proceeds immediately to the Continental arrival and departure station, which is under the control of the Customs authorities. Here the passengers and cargo are subjected to the usual formalities carried out at all ports of entry to the United Kingdom. The ordinary hours of attendance of the Customs Officers are from 8 a.m. to 7 p.m., but on receipt of one hour's notice the Civil Aviation Traffic Officer can arrange for their attendance any other time.

The Civil Aviation Traffic Office is immediately beside the Customs Station in front of the aerodrome, and contains various offices required for administrative purposes. The Duty Office is open day and night, and keeps all details of machines landing, arriving or departing. From the Meteorological Office are issued hourly reports on the weather conditions prevailing on the London to Paris, London to Brussels, and London to Amsterdam routes, which are posted on a notice board at the aerodrome. Special detail reports to cover

any route or time are also issued on demand. Daily forecasts obtained by wireless from the Meteorological Headquarters at the Air Ministry are also issued, and an hourly wireless weather report is sent to Paris, Brussels and Amsterdam.

For night flying two types of lights are used, paraffin flares and electric landing lights. The former are arranged in the form of the letter L, the short arm of the L being at right angles to the direction of the wind. They are lit each night at dusk, and kept burning for an hour and a half for the purpose of enabling aircraft reaching the aerodrome after dark to land in safety. The installation of electric light landing lights is now proceeding. When completed this will supersede the paraffin flares. The new lights consist of electric lamps below thick glass covers flush with the ground, automatically controlled from the Central Control Tower. An aerial lighthouse equipped with a flashing light having a long range is situated on the south-west corner of the aerodrome. The lamp is automatically controlled, lighting up as daylight fails, and can function without attention for six months at a time.

Three 36-in. searchlight projectors, one at each corner of the aerodrome, are installed for the following purposes: To throw upward fixed beams so that at night aircraft may locate the aerodrome; to light up machines which may have broken down on the aerodrome; to aid as an alternative method to assist aircraft to land at night in the event of the electric lighting system being out of action. In this case machines would land down the beam of light thrown on the ground away from the projector.

Rockets and Very lights are also used for signalling to and from aircraft. Each colour conveys a different signal.

A compass swinging base installed on the aerodrome is available to facilitate the correction of compasses.

The great speed of aircraft necessitates the speeding-up of communications along the aerial routes generally. It is,


AIR CONFERENCE VISIT TO WADDON : The Fairley Amphibian taxiing in

therefore, necessary for Croydon to be in direct touch with the terminal stations at Paris, Brussels, Amsterdam, and with intermediate stations on these routes, such as Lympne and St. Inglevert. Wireless stations have been provided by the British Government at Croydon and Lympne; by the French Government at Le Bourget (Paris) and St. Inglevert; by the Belgian Government at Evere (Brussels); and by the Dutch Government at Schipol (Amsterdam). The departure of an aeroplane is announced by wireless to the terminal station and also to the next station along the route from the departure station. In addition to the messages regarding the machines, meteorological reports are also passed along the different routes by messages giving the state of the weather at various points on and near the routes. Aerial transport firms are therefore enabled to decide whether to despatch their aircraft.

The wireless telephone enables direct communication to be maintained with aircraft in flight. Aircraft equipped with telephonic apparatus is enabled to report to aerodromes along the route and obtain the latest information in regard to the weather further ahead. It is also possible to speak from an office in London through the ordinary telephone *via* Croydon to another person in the air.

A wireless direction-finder is devised for the purpose of ascertaining at any moment the actual position of aircraft in flight. A direction-finder can ascertain the true direction from which a wireless call emanates, and with two direction-finders suitably placed the actual position of the aircraft sending the call can be ascertained. Such an apparatus has been provided at Croydon, and the provision of similar apparatus at Paris, Brussels and Amsterdam is under consideration by the Governments concerned.

The wireless station at Waddon consists of a transmitting-house, the transmitting circuits and apparatus for continuous wave telegraphy and for telephony, the transmitting aerial, the receiving aerial, which is also the direction-finder, and the operating room, with the receiving and control apparatus. The operating room is under the direction finder aerial.

On the departure of an aircraft its name and destination are reported to the Duty Officer, and a message is written out by



Air Conference Visit to Waddon: Messrs. F. T. Maynard, Ben Smith, and Bob Williams, interested representatives of the Federation of Transport Workers

him in the following form:—"Instone Geasi, Pilot Jones, 8 passengers, 16 packages, 3 bags mail, left 1635." If the aircraft is going to Paris the message is addressed to "Commandant, Le Bourget." The operator calls Paris by wireless and passes the message, which, on receipt, is sent by hand from the wireless office on Le Bourget aerodrome to the Commandant. The average time taken between the departure of an aircraft from Croydon and the receipt by the Commandant, Le Bourget, of the wireless message is 11 minutes.

Of the machines which took part in the recent Government trials at Martlesham, the following were on the aerodrome and were inspected by the visitors:—Austin "Kestrel," Avro triplane, Bristol biplane, Westland Limousine, Handley Page W.8, Vickers-Vimy Commercial, Fairey amphibian, and Vickers "Viking III" amphibian. The Supermarine amphibian flying boat was to have been on view also, but thick weather prevented it being flown up from Southampton.

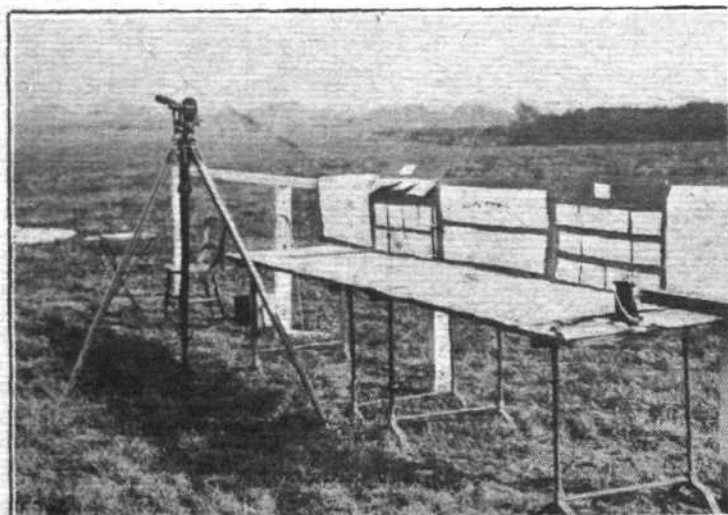
Several of the machines mentioned made a number of passenger flights during the afternoon, notably the Handley Page W.8, whose quick get-off was greatly admired, and the Westland Limousine.

Just before four o'clock, after a most interesting and instructive visit, the members of the Air Conference were conveyed to the station and returned to town. On arrival at the Guildhall the afternoon session opened with a paper by Capt. F. S. Barnwell on "Technical Aspects of Service and Civil Aviation," followed by a discussion. This we hope to publish in due course.

The morning session of the third and last day of the conference, when Admiral Beatty took the chair, was opened with the reading by Air Marshal Sir Hugh Trenchard of a paper entitled "Aspects of Service Aviation."

In the afternoon Commander Sir Trevor Dawson read the concluding paper on "The Commercial Airship—Its Operation and Construction." We hope to publish both these papers shortly.

The resolutions passed by the Conference during the various sessions are given on the next page.



AIR CONFERENCE VISIT TO WADDON: On the left: Meteorological charts and apparatus, and on the right: The landing "Tee," with the lamp which illuminates it at night

RESOLUTIONS PASSED BY THE 'AIR CONFERENCE

The following resolutions were passed unanimously:—

Moved by: Mr. G. Holt Thomas.

Seconded by: Maj.-Gen. Sir W. S. Brancker, K.C.B., A.F.C.

(1) That this Conference calls on the Government to decide definitely that all first-class mail matter shall be sent by Air Mail on selected Mail Routes of importance.

Moved by: Professor L. Bairstow, C.B.E., F.R.A.

Seconded by: Lieut.-Col. I. B. Davson, T.D.

(2) The Air Conference considering the importance of continuing a full measure of Aeronautical Research recommends that the Research Staffs of the Royal Aircraft Establishment and of the National Physical Laboratory should be maintained on a full and efficient basis.

(3) That such steps as may be necessary should be taken to maintain the designing staffs of Aircraft Constructional Firms on an adequate basis.

Moved by: Maj.-Gen. Sir R. M. Ruck, K.C.B., C.M.G.

Seconded by: Mr. G. Holt Thomas.

(4) The Air Conference 1920 desires to record its emphatic opinion that the rapid development of Civil Aerial Transport is vital to the interests of the Empire not only as a means

of developing the Communications, but also as an essential element in its defence, and endorses the recommendations of Lord Weir's Advisory Committee on Civil Aviation and urges their adoption by H.M. Government.

Moved by: Sir Wm. Joynson-Hicks, Bart., M.P.

Seconded by: Hon. Capt. J. P. B. Jeejeebhoy, R.A.F.

(5) That the Conference desires to impress upon H.M. Government the vital importance of Egypt to the future of military aviation.

Moved by: Mr. G. Holt Thomas.

Seconded by: Lieut.-Col. I. B. Davson, T.D.

(6) Recognising the great importance of Civil Aerial Transport to the British Empire, this Conference requests His Majesty's Government to review and reconsider the Report of the Civil Aerial Transport Committee, and the recommendations therein contained, with a view to adopting such recommendations as may now apply.

Moved by: The Lord Montagu of Beaulieu, K.C.I.E., C.S.I.

Seconded by: Commander Sir Trevor Dawson, Bart., R.N.

(7) That the Air Ministry be requested to consider the desirability of calling together in future a representative Air Conference annually to consider and discuss all subjects connected with aviation.

CIVIL AVIATION AND AIR SERVICES

By Maj.-Gen. Sir F. H. SYKES, G.B.E., K.C.B., C.M.G., Controller-General of Civil Aviation

THE extremely interesting paper read by General Sykes was divided into three sections, the first of which dealt with the growth and present position of air mail, goods and passenger services. The second outlined some of the factors contributing to successful air services, and in the third Sir Frederick made some suggestions for future development of air services. Lack of space prevents publishing the paper in full, but in the following an attempt has been made to condense the more salient points without, it is hoped, omitting anything of vital importance.

In his introduction the lecturer pointed out the two main branches into which aviation is divided, civil aviation and service aviation. The two branches are independent, yet closely allied: independent in that commercial and fighting types of machines tend to diverge; allied because the cadres which compose the service air force in peace time can only be augmented in a war emergency by a reserve of men from commercial aviation. After pointing out the reasons for the present absence of any internal air services in the Kingdom, due chiefly to the short distances to be covered, Sir Frederick referred to the three main routes to the Continent: the London-Paris (223 miles), London-Brussels (210 miles), and London-Amsterdam (258 miles). On the London-Paris route, in addition to the passenger and goods service, mails are carried by the Aircraft Transport and Travel Company, at a charge of 2d. per ounce in addition to the ordinary postage fees, with an optional addition of 6d. per ounce for express delivery. The London-Brussels mail service is operated by Messrs. Handley Page, from their Cricklewood aerodrome, the postage fees being the same as those of the London-Paris route. This firm also holds the contract for the carriage of mails between London and Amsterdam, which is the junction for air lines to Germany and Scandinavia. The "Air Fee" is 3d. per ounce.

With regard to the services actually in operation in foreign countries the lecturer gave the following information:—

France.—French air transport companies, assisted by Government subsidies, have established a number of services. There are four between Paris and London, two scheduled to run daily, the others spasmodic. A service runs from Paris to Brussels, the postage fees being 75 centimes surcharge for 20 grammes. The whole of the Bordeaux-Nice line is now believed to be in operation. A service is operated by a French company, in conjunction with the Spanish authorities, between Bayonne and Bilbao and its extension northwards to Bordeaux and south-west to Gijon is expected shortly. The Latécoere company has for several months operated a tri-weekly service between Toulouse, Tangier, and Rabat (recently extended to Casablanca), a distance of 983 miles. The postage fee on this route is 1.25 francs for 20 grammes. By an arrangement with the Spanish authorities the Latécoere company is responsible for the carriage of mails between Alicante and Malaga. A subsidiary service is run five times a week between Malaga and Casablanca.

An interesting and important scheme is now under discussion for the inauguration of an air mail service between Paris and southern Europe, and an agreement is believed to have been concluded between the French Under Secretary of State for Posts and Telegraphs and the Czecho-Slovak and Polish Governments. The first section of this route between Paris and Strassburg is already open, and extensions are pro-

jected from Strassburg to Warsaw, and from Strassburg to Vienna, Budapest, Belgrade, Bucharest, and Constantinople. 3,200,000 francs has been quoted as the amount of the subsidy which the Czecho-Slovak Government proposes to grant the Franco-Roumanian Company for this service. The Company will, in addition, receive 5 francs for every 20 grammes net weight of mails carried, and from the Polish Government 3,000 francs for every flight between Warsaw and Prague.

Belgium.—A Belgian company is operating an air service from Brussels to London. In Belgian Congo a line called the "Ligne Aérienne Roi Albert" has been established between Kinshasha and Stanley Ville, a distance of about 1,125 miles. Four seaplanes are used for this service, and mails, merchandise and passengers are carried. It is estimated that the full journey will take only three days as compared with the present seventeen days' journey by river.

Holland.—The Royal Dutch Transport Co., which holds a mail contract from the Dutch Government, works in conjunction with the A.T.T. Co. It has also made arrangements with a German Company by which air mails are despatched to Berlin. The Dutch are also interested in establishing air lines in the Dutch East Indies.

Germany.—German effort has been hampered by the terms of the Peace Treaty, but two companies have recently initiated an air service which may prove the germ of a future North European system of air routes. These firms are the Deutsche Luftverehrerei and, in conjunction with Scandinavian and Dutch interests, the Sablatnig company. This line runs from Copenhagen to Hamburg, Bremen and Amsterdam, where it connects with the Handley Page mail service. A second line runs from Copenhagen to Malmö, Warnemünde and Berlin.

Norway.—A fairly successful experimental air mail service was run between Christiania and Christiansand during the summer months, and in addition another service employing Supermarine flying boats has been running between Stavanger and Bergen, via Haugesund.

United States.—A particularly interesting experiment in the carriage of mails by air is being made by the United States Post Office, which owns, operates, and is entirely responsible for the machines used in this service. The original lines inaugurated in 1918 were from New York to Washington and from New York to Cleveland and Chicago. The Chicago line has now been extended to Minneapolis and St. Paul, Omaha and St. Louis, and further extensions are contemplated. An appropriation of \$1,250,000 to be used for the establishment of a service from New York to San Francisco was passed by Congress this year.

According to the Postmaster-General, between May 15th, 1918, and January, 1920, these services operated over 473,210 miles, carried 22,254,400 letters. Delivery was advanced by an average of sixteen hours, and an efficiency of 91.49 per cent. was maintained. The U.S.A. Post Office has, in addition, recently inaugurated a seaplane service between Key West and Havana, which connects with the railway service from New York.

British Dominions and Colonies.—Although, with one exception, no regular commercial air lines have yet materialised in the Dominions or Colonies, Canada, India and New Zealand have instituted Air Boards. The Canadian Board, whose functions are similar to those of the Air Council in Great Britain, acts in close co-operation with the Associate Air

Research Committee and the Meteorological Department (which has undertaken to establish pilot balloons and observation stations for studying the upper atmosphere).

All the Canadian Government air stations will be available for commercial traffic, and the Superintendent of Flying Operations, the member of the Board responsible for all civil aviation undertaken by the Government, has disposed of a number of hangars to municipalities to encourage and assist the establishment of public air ports.

A number of certificates and licences have been issued and it is an important feature of the Canadian scheme that persons taking out civilian certificates at the same time agree to become members of the Canadian Air Militia and to attend an instruction course for at least one month in every two years.

The Indian Board, which is under the administration of the Department of Commerce and Industry, has decided upon the provision of aerodromes on the Calcutta-Bombay-Delhi-Karachi, Karachi-Bombay and Calcutta-Rangoon routes.

Both Canada and India have drawn up air regulations, and the New Zealand Aviation Act of 1919 empowers the Governor-General to make regulations by Order-in-Council for the issue of licences to flying schools and pilots, the registration of aircraft and prohibited areas.

Australia possesses an Air Service Committee; the South African Government is examining the whole question of aviation; and the interest of both Dominions has been stimulated by the great demonstration flights from England. I shall touch later on a project for an air service from Melbourne.

It was mentioned that there was one exception to the lack of air services in the Dominions and Colonies. In the spring of this year the Bermuda and West Atlantic Aviation Company inaugurated a service in the Bermudas with Supermarine flying boats and Avro seaplanes, and more extensive schemes are under consideration.

Factors Contributing to Successful Air Services

Turning now to the second part of his paper, General Sykes pointed out that our watchwords must be Safety and Reliability; speed can be improved when these have been attained.

The Accidents Branch of the Civil Aviation Department conducts investigations into all serious accidents brought to their notice, and reports on the causes of such accidents, enabling any experience gained to be given general application. This work has been carried out since the Armistice without specific obligation imposed by Statute, but with the invariable goodwill and co-operation of the aircraft trade and of aircraft owners. Certain necessary co-relative powers are, however, lacking, and the Air Navigation Bill now before Parliament will remove such disabilities by making obligatory notification of accidents involving serious injury to occupants, or serious structural damage to aircraft.

Sir Frederick then pointed out that, apart from weather, the safety of aircraft depends largely upon the engines, and perhaps even more upon their installation and accessories. During the earlier stages of the War the life of an engine was from fifty to sixty hours for stationary engines, and fifteen hours for rotary engines. Today these figures stand at two hundred hours and upward, and from fifty to sixty hours, respectively. He then pointed out that increase in reliability may be furthered in two ways—by using a very light power plant, run normally at about half its maximum power, and by using a plant of greater weight, more solid construction, and greater efficiency, running at nearly its full power. The former method is more expensive in first cost and upkeep, but allows of higher performance and provides reserve power for emergencies. The latter is cheaper, but is thought to involve a certain risk owing to lack of surplus power in emergency. Sir Frederick also referred to the efforts being made in this country to obtain better lift for a given area, and mentioned as instances the Handley-Page and the "Alula" wings.

With regard to the use of different types of aircraft, the speaker mentioned that the airship can, without refuelling, carry a greater weight a far greater distance than the aeroplane. It can fly day and night, and is not so handicapped by fog and bad visibility. The aeroplane is faster and more easily landed and housed. The problem, however, is not one of rivalry but of co-operation. Types of aircraft of particular importance to us as an island state are the seaplane, flying boat and amphibian. The speaker gave it as his opinion that it is not unlikely that in the future the aeroplane, the seaplane, and the flying boat will yield much of their sphere to the amphibian.

Differentiation of types is required in accordance not only with the distance and natural characteristics of the route, but also with the nature of the freight carried. Whether aeroplane or airship, seaplane or amphibian is used, each will

gradually tend to be subdivided into mail, goods and passenger carriers. The special requirements for the first are speed, for the second, weight-carrying capacity, and for the third, speed and comfort.

Concerning ground organisation, Sir Frederick pointed out that it is important that this should be as perfect as possible. There are at present in Great Britain 53 civil, official, and privately owned aerodromes and 53 service aerodromes, available for civil aircraft in emergency only, and arrangements are proceeding for the provision of landing facilities for seaplanes at a number of British ports, and at French, Dutch and Belgian ports where Continental traffic is concerned. Under present conditions landing grounds for aeroplanes are necessarily located some distance outside large towns, but we are trying to devise a scheme by which large rivers flowing through towns may be used for landing seaplanes and amphibians, thus saving the relatively long journey to the aerodrome. Negotiations are in progress from which it is hoped that the Thames may be used for this purpose.

Satisfactory methods have yet to be devised for indicating to pilots on the Continental services what weather conditions are to be expected at Croydon, and so enabling them, if necessary, to land at Lympne instead.

A problem of considerable difficulty is the ground organisation for night flying. Aerial lighthouses have been in operation for some months at Biggin Hill and Croydon, another will shortly be located at Lympne, and a third between London and Folkestone. Other civil Government aerodromes will be equipped as soon as night flying is practicable. Permanent electric landing-lights and lights marking buildings are being installed, and experiments are being made in the use of a searchlight for showing up obstructions on the aerodrome, the illumination of wireless towers and flood lights.

Another important factor in the organisation of air navigation by night, and in fog or mist, is the installation of an efficient wireless direction finding and wireless telephonic system. The direction finding apparatus installed at Croydon enables aircraft to correct their course at night, or in thick weather.

Wireless stations have also been opened at the civil aerodromes at Castle Bromwich, Didsbury and Renfrew, and the number will be increased at the need arises.

With regard to meteorology, General Sykes said:—"The safety and regularity of air services are largely dependent upon accurate meteorological reports and forecasts, which give the pilots confidence and enable them to circumvent adverse weather. The forecast service of the Meteorological Office in the Department of Civil Aviation, issues hourly reports and short period forecasts for the requirements of the moment; it issues four times daily forecasts covering 24 hours to assist in making arrangements beforehand, and it issues synoptic messages which give a bird's-eye view of the weather conditions over the whole country, and enable continental and local meteorologists to anticipate the coming weather in their respective areas. The organisation of the system of local centres, specially charged with the distribution of information, was commenced toward the end of 1919. Ten out of twenty of the projected stations are already in operation, three of them being primarily concerned with the provision of reports and forecasts for the London-Paris-Brussels-Amsterdam services. For points along these routes information is supplied of the surface wind and the wind at 2,000 feet, of the amount and height of any low cloud, of the visibility and the prevailing weather, and, for seaplanes, of the state of the sea. Collective reports are issued hourly by W/T from Croydon aerodrome, together with forecasts for the remaining period of daylight, and copies of these reports and forecasts are distributed to air transport companies and to others concerned. As a result of international agreement, similar reports are issued at Paris, Brussels and Amsterdam."

Concerning economic and financial factors, the speaker pointed out that there are innumerable points upon which one could dwell, such as the necessity for simplicity of design, cost of upkeep, etc., but he confined himself to touching upon a few of the main economical and financial features, pointing out that speed must be paid for, but admitting that from the point of view of the public the present charges are undoubtedly high. Our feature which militates against the reduction of charges is the rising cost of petrol, and Sir Frederick stated that we must endeavour to discover other fuels, and that engines must be developed so as to ensure the most economic use of such new fuels; he said that it was quite possible that we may eventually have to replace the petrol engine by the steam engine.

Concerning the burning question of subsidies Sir Frederick said:—"A problem which often comes up for discussion is

'What assistance should be given by the State to commercial aviation?' In France the question has been answered by a liberal grant of subsidies, each of which is divided into four parts:—(1) for amortisement and upkeep; (2) for the crew; (3) for weight carried, and (4) for military value. It is stated that the subsidy will be granted to 'legally constituted air navigation companies carrying out regular services of public value,' but the criticism might be made that its practical effect is to give financial assistance to any company maintaining machines in the air without sufficient regard to the value of the work done, or the commercial utility of the machine employed. In fact a fourth part of the subsidy encourages machines of military utility, and therefore tends to counteract the development of a purely commercial type. In England, on the other hand, the State provides indirect assistance by assuming responsibility for the organisation of aerodromes, wireless and meteorological services, by the adjustment of international questions, by research and experiments.

"You will remember, however, that the Advisory Committee on Civil Aviation, in their Report came to the conclusion that in spite of the indirect assistance provided the development of civil aviation might stop short. The more experience we get, and the more I consider the case in regard to the scheme of subsidies we recommended, the more clear I am that those recommendations were sound. It was shown in our report that for reasons of geography and climate the conditions were unfavourable to the growth of air transport within this country. It was shown that, on the other hand, services to the Continent would afford very valuable experience and data upon which to build future Empire air lines. To my mind a healthy air transport industry will

assist a healthy constructional industry, which in its turn will be of great value to military aviation. Appreciative as I am of the arguments in favour of allowing industry to stand on its own feet, I am strongly of opinion that civil aviation must not be allowed to die for lack of direct assistance, the need for which would only be temporary. That is to say, during the period—two to five years—during which old material is being used up, and whilst new and really suitable types are being evolved. Without this small stimulus, I feel it will be very difficult for transport concerns to show enterprise and vigour even if they can live during the next year or two."

On the subject of insurance, General Sykes said that aviation insurance has been actively taken up by the Scandinavian Insurance Pool, which consists of 89 affiliated companies and aims at becoming the Lloyd's of the aircraft world. In this country our policy is to encourage insurance to take a normal course. At present, however, insurance companies are handicapped by lack of machinery and experience. At present, therefore, the responsibility of inspection, licensing, certificates, etc., devolves entirely upon the state. It is hoped that with the expansion of air transport the insurance companies will assume a great deal of the work of inspection. "I think," Sir Frederick said, "that the question is one of so much importance that I hope shortly to ask representatives of Lloyd's and leading insurance groups to meet members of the air constructional and transport industries at the Department of Civil Aviation to work out the most suitable scheme."

Concerning mail carrying by air, Sir Frederick said:—"Without minimising the importance of goods and passenger traffic by air, in my opinion, the carriage of mails is the

British Civil Aviation, including Continental Traffic, May, 1919, to July, 1920, inclusive

	May to September, 1919, five months	October, 1919, to March, 1920, six months	1920				April to July, 1920, four months	Average Monthly Total, May, 1919-July, 1920	May, 1919, to July, 1920, 15 months
			April	May	June	July			
Number of machine flights ...	31,250	6,571	1,133	2,210	3,763	3,399	10,505	3,221	48,326
Number of machine hours flown ...	6,566	3,061	511	847	1,460	1,820	4,638	950	14,265
Average duration of each flight in minutes ...	12	28	27	23	23	33	26	18	18
Approximate machine mileage ...	460,285	231,574	42,400	76,000	128,500	143,700	390,600	72,160	1,081,459
Number of passengers carried ...	58,132	9,808	1,983	2,870	4,766	5,005	14,624	5,504	82,564
Weight of goods carried in lbs. ...	45,130	57,648	13,720	17,387	29,314	32,173	92,594	13,025	195,372

Departure and Arrival of Aircraft to and from the Continent, August, 1919, to August, 1920, inclusive

	Aug. 26-Sept. 30, 1919		Oct., 1919-Mar., 1920, 6 months		April		May		June		July		August		April-August, 5 months		Grand Total	
	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.
British ...	77	72	324	281	79	64	126	116	183	176	197	177	220	193	805	726	1,206	1,079
French ...	6	7	60	60	27	25	45	43	37	38	30	31	36	32	175	169	341	236
Belgian ...	—	—	3	4	—	—	1	1	—	—	1	1	2	3	4	5	7	9
Swiss ...	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Other States ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total ...	83	79	388	346	106	89	172	160	220	214	228	209	258	228	984	900	1,455	1,325
	162		734												1,884			

Number of Letters Transmitted by Air Mail, March to August, 1920

Month	Number of letters for			Total	Number of letters from			Total
	Paris	Brussels	Amsterdam		Paris	Brussels	Amsterdam	
March ...	1,607	—	—	1,607	1,225	—	—	1,225
April ...	971	—	—	971	1,010	—	—	1,010
May ...	1,923	—	—	1,923	1,359	—	—	1,359
June ...	2,141	—	—	2,141	1,592	—	—	1,592
July ...	2,951	1,026	2,930	6,907	1,568	648	7,425	9,641
August ...	6,165	2,262	4,436	12,863	1,252	1,552	7,750	10,554
Total, March to August	15,758	3,288	7,366	26,412	8,006	2,200	15,175	25,381

Value of Goods Exported from the United Kingdom by Aircraft, August, 1919, to August, 1920

Month	British Exports to					Re-exports to			Total
	France	Belgium	Nether-lands	Den-mark	Spain	France	Nether-lands	Belgium	
1920	£	£	£	£	£	£	£	£	£
April	4,522	—	—	—	—	5,160	—	—	9,682
May	8,882	—	923	—	50	12,126	30	—	22,011
June	7,438	—	1,662	—	—	13,543	823	113	23,579
July	6,844	87	3,133	—	—	10,176	4,644	—	24,884
August	7,960	11,988	5,482	2,850	—	13,738	1,755	44	43,817
Total, April to August ...	35,646	12,075	11,200	2,850	50	54,743	7,252	157	123,973
Total, August, 1919, to March, 1920	31,429	9,583	3,497	—	I (Italy)	25,732	—	—	70,242
Total, August, 1919, to August, 1920	67,075	21,658	14,697	2,850	51	80,475	7,252	157	194,215

Value of Goods Imported into the United Kingdom by Aircraft, August, 1919, to August, 1920

Month	Imports (free) from				Imports (dutiable) from				Total
	France	Nether-lands	Italy	Belgium	France	Italy	Belgium	Nether-lands	
1920	£	£	£	£	£	£	£	£	£
April	29,350	—	850	—	1,967	4,000	—	—	36,167
May	74,978	24	—	—	862	82	—	—	75,946
June	68,723	1,000	—	—	5,734	4,000	—	13	79,470
July	47,797	420	—	91	3,667	—	2	29	52,006
August	54,304	212	—	—	1,845	200	379	—	56,940
Total, April-August	275,152	1,656	850	91	14,075	8,282	381	42	300,529
Total, August, 1919, to March, 1920	127,618	470	—	384	7,630	6	7	1	136,116
Grand total	402,770	2,126	850	475	21,705	8,288	388	43	436,645

basis on which commercial aviation must at present develop. Aircraft has revolutionised the speed of intercommunication by letter; and banks and financial houses are beginning to realise that large savings can be made by utilising air mails for the transaction of business. We should approach the question by considering, not what mails can, but what mails cannot, be carried by air. The area of the British Isles is not very favourable for an extensive air mail service, which can only operate by day, since by the existing means of

transport mails are carried during the out-of-business hours and can generally reach their destination in a night. This is another reason why it is highly important to solve the problem of regular night services. On the air services to the Continent, on the other hand, a great saving in time is effected, and I should like to see a very material increase in the amount of mails thus carried, with the ultimate result of the carriage of all mails by the certified Continental air services at normal rates."

Accidents

	May-September, 1919, 5 months	October, 1919-March, 1920, 6 months	April-July, 1920, 4 months	May, 1919-July, 1920, 15 months
Resulting in death of one or more occupants of machine	2	2	1	5
Non-fatal, but resulting in injury to occupants of machine	8	3	2	13
Accidents resulting in death of third party	1	—	—	1
Accidents not involving injury to personnel	2	6	5	13
Total reported	13	11	8	32
<i>Casualties to Personnel</i>				
Pilots killed	2	2	1	5
Pilots injured	6	3	—	9
Passengers killed	—	1	2	3
Passengers injured	10	2	2	14
Third party killed	1	—	—	1
<i>Accident and Casualty Rates</i>				
Machine miles per accident	35,400	21,000	48,800	33,800
Machine flights per accident	2,404	597	1,302	1,507
Machine hours per accident	505	278	579	445
Passengers killed per 1,000 carried	—	10	07	04
Passengers injured per 1,000 carried	17	20	17	17

Suggestions for Future Development of Air Services

In the third and last part of his paper, Sir Frederick Sykes said:—

"In urging the establishment of air services within these islands we must face the fact that commercial aviation cannot enter into competition by day only with an efficient day and night express railway service. Possible exceptions might include amphibian services between London and Dublin, accelerating the delivery of mails five or six hours; or between Glasgow and Belfast, where the Clyde and Belfast harbours could be used as the terminals."

"In Continental countries also air transport has to compete against railway systems, but the distances between centres of population and industry are more suited to the operation of air services and the railway network is less perfect than in England. The position of Germany and Austria is very favourable to the development of air services. Berlin is within a 350-mile radius of Copenhagen, Cologne, Munich, Vienna and Warsaw, while Vienna is in an advantageous situation as the junction for a south European system extending to the Balkan States and the Near East. In the United States the distances are such that aeroplanes, flying by day only, can in many cases effect considerable saving of time. The New York-San Francisco mail service, for instance, should save about two days in the delivery of letters. But though the area of the United Kingdom does not allow of internal long distance flights essential for obtaining the full value from aircraft, its insular position is by no means unfavourable to the establishment of air services to the Continent, whereby the sea passage and the loss of time entailed in changing from ship to train can be saved. Until night flying is safer and longer distances can be flown continuously, we must ensure the maintenance of the existing services to the Continent and promote others on the same lines. Not only Paris, Brussels and Amsterdam but the Scandinavian countries and the north German ports, and to the south, Spain and Portugal, should be linked up with England by British air services."

"We have, however, to consider commercial aviation, not only from the Continental, but from the Imperial, point of view. Here we have the long distances favourable to aircraft, but England is detached, either by the ocean, or foreign territory, from the nearest dominion or possession. In the one case the range is too great for aeroplanes, in the other they are dependent on foreign landing grounds. The key-routes in the Imperial system are those from England to Egypt, and Egypt to India, and we should see whether the airship is capable of running a commercial day and night service on the former."

"When the political difficulties of Syria and Mesopotamia have somewhat subsided, we shall be able to complete the preliminary organisation of the route from Egypt to India which has recently been checked."

"The onus of linking up the Empire by air must not rest upon Great Britain alone. Each dominion and colony must form its own nucleus of air development and thus help gradually to build up the complete system."

"Large rivers are adaptable to flying boat services, especially as they have the great advantage of visibility by night, and the consideration of a project for such a service on the Nile was only given up owing to the disturbances in Egypt. A practical scheme is also under consideration for an air service from Melbourne to Sydney, Adelaide and Hobart in Tasmania. The distances between the various stopping places are not so great as to overtask the capacity of modern aircraft, and should afford an excellent criterion of the value of aircraft as a mail and passenger carrier."

In conclusion, General Sykes said:

"Let us have no illusions about the difficulties confronting civil aviation. Never has the need of national retrenchment been greater, and it is clear that financial stringency will increase rather than diminish. But economy which is blind to the demands and possibilities of progress is no true economy, and I firmly believe that a reasoned policy of financial encouragement toward productive services will in the long run prove an infinitely more profitable investment than others which have taken place. Without such encouragement, the air transport industry, which is yet in its infancy, may wilt, and by reason of the unimaginative correctness of British policy, not only may one of those opportunities which do not recur be lost, but we will have to face the almost complete disintegration of the expert designing and construction staffs built up during the War, and the potential loss to the Royal Air Force of what the Mercantile Marine is in emergency to the Navy."

"Progress has never yet been effected by a policy of 'ca' canny,' and it is of small avail for us to mark time on the

off chance of being able to profit by the experience of more imaginative countries. We are in many ways in a better position than any other country in the world. We possess the best pilots, designers and constructors, the highest technical skill and the most practical authorities, and, if I may say so, a Department of Civil Aviation which could hardly be more economically run. We have carried out the great pioneer flights of the world, and in the Empire as a whole exist the most favourable field for the development of air transport. What we still need is visible and public support; the imagination to take a bird's-eye view of the future blended with the British characteristic to persevere in the present."

THE DISCUSSION

A number of speakers contributed to the discussion which followed the reading of Sir Frederick Sykes' paper.

Sir William Joynson-Hicks

said he would like to see the Postmaster-General ask for a tender from aircraft firms to carry the whole of the country's first class mail by air. In his opinion it would be a sound form of subsidy to concentrate on the carriage of all mail by air. There was another point that he would like to emphasise, *i.e.*, the importance of Egypt. He thought that in the future the centre for air lines to Africa, India and Australia would be Egypt, and for that reason, as well as from an Imperial point of view, he would like to lay stress on the importance of maintaining our control of that country.

Lieut.-Col. Moore-Brabazon

put in a plea for greater development of and assistance from meteorology. He said it seemed to him that the weather was the function of an unknown variable, and pointed out that it appeared extraordinary that we were able to forecast an eclipse of the moon 40 years ahead, but were unable to say if it would rain this afternoon. In his opinion not enough attention was paid to electricity in its relation to the weather. We all knew that it was not until the apple dropped on Sir Isaac Newton that he thought of the force of gravity. Probably our meteorologists would not think of electricity until one of them was struck by lightning. He said that he had no doubt that some day we should be able to use aircraft to control weather. Experiments on precipitating rain by means of dust had already been tried, and although success had not yet attended these experiments, he thought that before long it would be possible to do so.

Sir Alan Anderson (Chamber of Shipping)

said he thought one of the reasons for commercial aviation not paying was that most of the work accomplished up to the present had been done with military machines, and that to run services with such types was not a commercial proposition. He also pointed out that it was not reasonable to expect shipping firms to take an interest in aviation until they could be reasonably sure of it promising to pay. He called attention to the possibilities of airships for commercial air services over sea routes or over land routes of long duration.

Mr. Holt Thomas

expressed the hope that one result of the Air Conference might be that the Cabinet would support civil aviation. He pointed out the attitude in France where recently a high authority had said that the master of the world will be he who is master of the air. Personally he was opposed to subsidies, he said, and much preferred a system of "Payment for services rendered." He felt sure that if the Government could be persuaded to send all mail by air this could be done for a surcharge of no more than 1d. per letter. To do so, however, was a matter for a Cabinet decision.

Mr. Instone

said that commercial aviation had had much nursing from the Air Ministry, but that it also needed a tonic from the Government. As representing a commercial firm, free to buy its machines in the open market, he had had some experience of commercial aviation, and his experience led him to regard it as a commercial failure. Even if the machines always carried full load, and in practice this ideal was seldom attained, the services did not pay. He would suggest that as machines can be converted into bombers, the greatest problem was that of trained personnel, and that the Government could render assistance by farming out its pilots to transport companies. He also thought it might be possible to give commercial aviation companies the free use of aerodromes. With regard to insurance, he thought it might be possible for the Government to arrange to insure aircraft at a figure which, while being reasonable, would just pay the Government without leaving a profit, somewhat after the fashion of the Government insurance of ships during the War, except that in the latter case he thought the Government made a handsome profit out of their insurance. Finally he emphasised that the

question of depreciation must be taken into account when examining whether or not a service pays, and although at present it was difficult to estimate accurately the value of depreciation, he thought that when it was taken into account the present services did not and could not pay.

Mr. R. A. Bruce (Westland Aircraft Works) called attention to the danger of technical staffs being reduced or dispersed altogether. He would suggest that instead of Government competitions and competitive designs it would be better to take, say, twelve firms who had proved their ability to produce successful original designs, and give each a definite task of developing some particular type of machine. In this manner the designing staffs would be kept together, and we would thus be preserving the seed from which would some day grow the golden harvest.

Sir Charles Bright said that as regards the question of subsidies being contrary to tradition, he would point to the matter of cables, which were subsidised from the beginning, and that such a policy was recognised as being in the best interests of the nation.

Mr. A. E. Berriman expressed the hope that the conference would take notice of the remarks made by Mr. Instone, who was a practical man, looking upon commercial aviation from a practical commercial standpoint. He (Mr. Berriman) had made some rough estimates which indicated that on a commercial service, taking the number of seats as the basis, the cost was £600 per seat

per annum. Taking the number of flyable days in the year as 300, we obtained a cost of £2. As machines were not always carrying a full complement, but would probably average about one-half of their capacity, this figure would be doubled, i.e., £4 per seat. On the basis generally accepted that one must have two machines on the ground for each machine in the air in order to run a regular service, the £4 became £12 per seat. He thought that it would be necessary for the Government to give some form of assistance and would suggest that the best form which this could take would be a guaranteed load at an agreed rate.

General Sir Sefton Branker

declared that personally he was against subsidies as tending to encourage inefficiency, but at the same time he was forced to the conclusion that some form of assistance must be given. Commercial aviation had failed to pay mainly because converted War type of machines had been used. Capital was wanted for getting machines especially designed for commercial work, and if capital was forthcoming he was convinced that commercial aviation would soon pay. If aerial transport had been placed under the Ministry of Transport a year or two ago, he thought it might by now have been in a very different position. In view of the time wasted in getting to and from aerodromes, he urged that serious consideration be given to the feasibility of building an aerodrome over Victoria Station and surrounding district, as some arrangement of that sort would certainly have to come sooner or later.

THE DISCUSSION OF MR. WHITE-SMITH'S PAPER

The paper read by Mr. White-Smith, entitled "The Operation of Civil Aircraft in Relation to the Constructor," which was published in our issue of last week, was followed by an interesting discussion, a brief summary of which follows.

The Chairman (Lord Weir)

said that a good deal more had been achieved in aeronautical progress than was generally realised. Bringing home to the public the importance of aviation was one thing. To impress upon the Government its responsibility in regard to aviation was quite another thing. No Government could compel success in aviation. Under present conditions, he said, only a very limited amount of capital would be available for aviation during the next few years, and it was important that this should be utilised for maintaining and expanding present enterprises rather than dissipated upon new schemes. The importance of the Cross-Channel services could not be exaggerated, and these services had a claim upon the Government to see them through the early difficulties. That claim for help could not, he said, be disregarded much longer. He thought that aviation had a better future in the Dominions and abroad than in the Kingdom, but the present services were doing excellent work and were attracting prospective purchasers of British-built machines.

Mr. F. Handley Page

said that Mr. White-Smith had referred to the noise and other discomforts of flying, and to the cramped accommodation in passenger aeroplanes. With those remarks he could not quite agree. On the contrary, many of the machines used on the London-Continent services were at least as comfortable as trains as regards roominess, and then it should not be forgotten that in the air there was a complete absence of dirt and dust. In addition to this, passengers on an aircraft had the extra advantage of breathing mountain air during the trip, with the consequence that they arrived at their destination fresh and energetic instead of tired and dusty. He quoted one case showing the enormous advantage of air travel over ordinary means. The managing director of a firm had business to conduct in Bucharest. By hiring a machine he was able to complete the journey from London in 18 hours. While at Bucharest he had business to transact in another town, which he reached by air in a few hours, attended to his business and was back in Bucharest in time for dinner, thus saving two or three days on this local trip alone. The return journey was commenced on a Friday afternoon, and the gentleman in question was back in London on Monday morning. Regarding future developments, Mr. Handley Page said that he thought future machines would have much smaller resistance than present ones, thus requiring only a small proportion of the maximum power of the engines. While, as at present, the sending by air of mails was voluntary, he thought it was much easier to get a passenger than it was to get the same weight of mails, but if we came to carrying all first-class mails by air the reverse would be the case.

Some of the figures given in Mr. White-Smith's paper were too pessimistic. For instance, the actual cost per flying hour of the H.P. 0-400 was between £16 and £17, instead of £22 9s. This reduced the rate per passenger mile to 6d. Also the cost of engines had been over-estimated. Thus the cost of a Rolls-Royce, he thought, was £1,100. On the matter of depreciation, he thought, in view of the rapid developments in design, it was better to write off a machine quickly in order to keep up to date. Regarding subsidies he was certain that operational industry can and should be helped by some form of subsidy. It was often said that subsidies were against our traditions. He did not really think there was any good reason for that. Thus in the case of telegraphs. He did not think that these paid, but it was then customary to call the difference a deficit at the end of the year, instead of calling it a subsidy at the beginning of the year. Much had been said regarding the stimulus of aviation. Unfortunately the industry could not live on stimulus. He thought that what the industry needed from the Government was a little more of the feeding bottle and a little less of the policeman.

Col. F. Searle

pointed out that it had been found impossible to make a profit by using small two-seater and four-seater machines. He admitted that the cost of passenger travel by air was somewhat high, but pointed out that the services catered for business men whose time was valuable, and that we could not yet undertake workmen's fares. By the time one had taken into consideration everything the cost of air travel was not really so much greater. For instance, by travelling by air a man could leave London in the morning, transact his business in Paris during the day, and be back in London in the evening. He thus saved two days of salaried-time, plus hotel expenses, taxis, etc., so that one should really add at least £10 to the £7 of the railway fare. If this were done air travel would compare very well with the older methods. He stated that the wireless ground organisation at present is far from being what it ought to be and needs thorough overhauling. The importance of night flying had been pointed out, but before that could become a practical proposition we must have a thorough lighting of the routes.

Regarding profit earning capacity of aeroplanes, Col. Searle said that a machine costing £5,000 could earn £160 in one hour, which was surely very much better than one found in most other business propositions. Calling attention to some practical points in connection with running air services he pointed out that "bus engines do 3,000 hours a year for ten years, and that aero engines work under much better conditions. In the installation of most engines there was much to be desired. For instance, one engine had no less than six rubber connections in its petrol system. This was very bad, and in the case of 'buses all petrol piping joints had been made of metal many years ago. Then there was the question of cowling. Many engines had cowlings in which long wire bolts had to be withdrawn, instead of using fittings more on the lines of ordinary bonnet fasteners. Engine installations

should be so designed that they could be removed as a unit from the machine in a very short time. He would also call attention to the matter of control cables. This might seem a very small item, but he could assure the Conference that in practical work they were a very serious item, requiring frequent renewal. Magnetos, he said, were placed in the very worst position, where they were absolutely smothered in

oil. On the matter of training pilots in the future he thought that there would be no time for training them at schools as in the past. Machines would probably be designed with an extra seat in the pilot's cockpit so that the prospective pilot would be trained by making a number of trips at the side of the pilot, learning during the actual journey of the machine on its regular service.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns

AIRCRAFT INSURANCE AND THE AIR CONFERENCE

[2031] At the Air Conference which has just closed, the matter of the insurance of aircraft was more than once mentioned. One speaker, in dealing with the costs of operating an aeroplane service, specified a premium of 15 per cent. of the value of the aircraft as about the premium which might be expected to cover the risks, presumably the usual risks of accidental damage, third party liability, etc. Another speaker suggested 33 per cent. as the premium to cover airship risks. These figures are of sufficient magnitude to make the matter of aviation insurance one to bulk largely in aviation finance. The figure of 33 per cent. represents a colossal amount when one considers the large values of airships, and might well make all the difference between the profit and loss of an airship enterprise. Perhaps then the views of an underwriter of aviation risks may be of some interest to your readers. I think I may safely say that other underwriters share the views I submit.

I have been an underwriter of aviation risks since 1912. In those early days it was stated and proved on paper that no underwriter could possibly afford the protection of insurance to those engaged in aviation and at the same time make a reasonable profit for himself. I am happy to say that I successfully disproved that theory from the commencement of my operations, and it is now quite possible to secure the necessary protection at fairly reasonable rates of premium, if only you know how to do it. I say "fairly" reasonable advisedly since there is much room for improvement concerning which I venture to make several suggestions in this letter.

I hasten to say that the figures of 15 per cent. and 33 per cent. mentioned at the Air Conference are both of them right, both wrong, and mean nothing at all as they stand; but I am getting ahead of my theme and I shall recur later to those figures which must have given food for furious thought to any experienced financiers present at the Air Conference.

From what we heard during the Conference it is clear that civil aviation is not yet profitable, that it is, indeed, financially unsound as any business must be which cannot show adequate return for capital invested. On the other hand, I think we must all agree that the future is full of promise, and that with the many technical and other improvements in sight, and the vigorous spirit which the Conference has made so apparent, Civil Aviation will before long come into its own as a perfectly sound commercial business with extraordinary possibilities of profit, not only for those with the enterprise to seize the opportunities the new Age of the Air heralds, but also for the Empire in general. At the moment, however, we must perforce regard Civil Aviation as financially unsound and it is quite obvious, I think, that the risks taken as a whole of any business in that condition are uninsurable at commercial rates of premium. I say "as a whole," because it is quite clear that only clean policies are of any real use to the assured. Policies containing burdensome conditions and so forth intended to lighten the risk for the underwriter cannot be regarded as adequate protection for the assured. Underwriters then who cover aviation risks in toto must charge premiums in excess of anything which a good business man would care in the ordinary way to pay. That creates a very difficult position, for no business now-a-days can be safely conducted without adequate insurance protection, and none less than aviation enterprises carrying as they do risks of a very hazardous nature. The position appears at first sight to be one of stalemate until civil aviation finds its commercial feet, and yet I think a good deal may be done to make aviation insurance more commercially possible almost at once, and if that is done I think it would mean a distinct forward step towards sound aviation finance.

Firstly, underwriters are very blind as to the nature of aviation risks, with the result that they accept much bad unwholesome business at rates of premium which are too low—business which it is not perhaps in the best interests of British Aviation to encourage by freely granting insurance

facilities or indeed any other facilities. The good business must then pay for the losses of the bad business with the unhappy result that those conducting aviation enterprises on the best lines pay a higher rate of premium than would otherwise be the case. This is due to the blindness of underwriters, and in order to better that state of affairs Lloyd's has lately established an Aviation Record for the purpose of affording essential information to underwriters—information as to the types of aircraft, individual aircraft, aerodromes, air routes, pilots and technical personnel, etc. There is at present no attempt at classifying aircraft, but merely an endeavour to collate facts for the information of underwriters. The Committee responsible for the Record includes representatives of not only underwriters, but also representatives of the Society of British Aircraft Constructors, individual aircraft constructors and Aviation Transport Companies, and I would especially emphasise the fact that its objects are as much for the benefit of the aeronautical trade as for underwriters. It is then hoped that all those commercially interested in aviation will support the Record by assisting it with information as to aircraft and the technical qualifications of the personnel engaged in operating the aircraft. In this way underwriters will be in a far better position to discriminate between risks (that is indeed to a great degree the art of underwriting) and, once in that position, the right kind of risks, the risks attending those ventures most likely to succeed and bring profit to their backers and the Empire, may be covered at far less premiums than is at present the case. That is my first suggestion which may be summed up in the six words "all the cards on the table."

Secondly, I would advise those who wish to have their risks covered at reasonable premiums to regard the other side, i.e., the underwriters' side. Underwriters are not in business as supporters of a charitable institution. They have to live like other people and they must make a reasonable profit or vanish in which case with them must disappear the stabilising factor of insurance without which no commercial enterprises can be permanently safe. When the late War finished there at once appeared a strong forward movement in commercial aviation. It all happened at once, and so there arose a large and immediate demand for insurance protection. Of course, the full strength of this could not last. The risks once covered would not be renewable for considerable periods, and it was bound to tone down to a very much smaller, though possibly steady, demand for aviation insurance policies. This was not fully understood by many, who, up to that time, had gained little or no experience of aviation risks. It was thought that a new and extraordinarily large field for underwriting activities had come into being, and that it was ready for permanent cultivation on a large scale. The result was that a great many people tumbled over one another to "get in" and accepted a mass of risks at premiums which could not possibly pay. Well, it was a good thing for those running aviation ventures while it lasted, but it was unsound. Large losses were made by underwriters and those times are now over. The insurance market for aviation risks is rapidly becoming more restricted, and rates of premium are stiffening. The low rates of the past eighteen months have not been altogether a blessing for those with commercial interests in aviation. The amount of insurance premiums play a large part in their calculations for the future, and it is obvious from the figures given at the Air Conference that many are at sea as to how much to allocate for the purpose of securing the necessary insurance protection without which no commercial results can be reasonably certain. At the Conference the figures of 15 per cent. and 33 per cent. were mentioned as the rate of premiums to cover aircraft risks; 15 per cent. would be reasonable provided the assured contracts to relieve the underwriter of a certain amount in respect of any claim, and 33 per cent. would be more or less reasonable in the case of the assured bearing no part of any such loss. Such arrangement is very customary and of long standing in the Insurance

World, and no figures as to the rate of premiums indicate anything intelligible unless the amount borne by the assured in respect of every claim is clearly specified. In my opinion, and I have had some slight practical experience in building and repairing aircraft, it cannot be of profit to the assured to pay the premium necessary to cover full Accidental Damage unless he, which is very unlikely, possesses no means of his own to undertake repairs. Repairs up to a certain amount can nearly always be executed without increasing his establishment charges and without greatly increasing his labour charges, for aviation enterprises are of such a nature that the assured is always in possession of certain workshops, technical, personnel, etc., the activities of which are, to a certain extent, dependent upon weather and other factors. This results in a certain proportion of their time being available for repair work which can be carried out without any material increase in permanent charges. Now it is in respect of the first part of any loss that the bulk of an insurance premium is charged. Cut out the first part of any loss and the premium at once shrinks. If aircraft owners would specify that they would bear a certain amount in respect of any loss, they themselves fixing that amount as the one which, having regard to their repair facilities, they can bear without materially increasing their establishment and labour charges, then they will find that the premiums charged by underwriters to which they are at present accustomed will fade away to a remarkable degree. That is one way to secure low premiums. As an underwriter I am very anxious to see lower premiums than at present exist for they mean satisfied policy holders and more policy holders, and that in turn means a larger field over which to average my risks. That means safety for me and a steady business. Again, as one intimately connected with aviation since the very early days, I have the cause of British Aviation very much at heart, and I am most anxious to see lower premiums, because I know that they must greatly assist in the development of aviation in the British Empire.

Thirdly, I feel, and I think it is also felt by other underwriters, that half or more of any aviation risk depends upon the qualifications of the pilot and of the technical personnel responsible for the proper maintenance of the aircraft, especially the heart of the aircraft, the engines. These personal factors were not, I think, given the prominence they deserve during the Conference, and yet it appears to me that they are extremely important. The Civil Department of the Air Ministry has done much valuable work in connection with creating regulations for and granting certificates to pilots and ground engineers, who are, I feel I must emphasise, the paid employees of Air Transport Companies. There is no country in the world so far ahead as we are in these ways, but while expressing my appreciation of that most valuable work I do suggest that a great deal more might be done. I will not labour this point because, well, it is rather

a delicate one and also because those to whom I especially address myself know well all that I might say and the forceful arguments which I might employ. But since criticism is not of much value unless constructive, I will venture to make one suggestion, and that is this, that at each important aerodrome (there are but few), there will be stationed a well qualified officer-inspector to note the work of those of the personnel certificated or licensed by the Air Ministry, and to report any matters which it appears might adversely affect the safety of the public. Where lesser aerodromes are concerned I suggest that one officer could look after several of them.

Some of those commercially interested in aviation will perhaps throw up their hands and exclaim, "What! more control? That is far from what we want!" but I think that the long-headed ones would not adopt such an attitude but would support such a scheme designed to minimise risks—their risks besides those of the public from whom in the end they must live. And again, that which is sauce for the goose is also sauce for the gander. They would give the public medicine in the form of airborne mails (I am quoting from the words of a speaker at the Conference), and surely they should not object to measures being taken to render that medicine as safe as possible. I believe, that such a scheme would go a long way towards minimising risks and reducing rates of premium.

If underwriters can be better informed, and if risks can be lessened, there is no doubt at all that very much lower insurance premiums will be quoted, and once we can get them down to a commercial level then it follows that aviation has become a sound commercial fact, for I think it is fairly obvious that the rate of insurance premium is the index finger which points unfailingly towards the soundness or otherwise of a commercial enterprise.

During the last session of the Air Conference we listened to Sir Trevor Dawson's extraordinarily interesting and informing paper on Airships. It is clear that they hold very great possibilities and that, having regard to the large values concerned, values which will probably run into millions before very long, the Insurance market will be strained to its utmost to grant the necessary insurance protection. The remarks I have made apply with even greater force to Airship risks than they do to Aeroplane risks, because their nature is more of an unknown quantity.

There is a great deal more to be said upon this subject, and many constructive suggestions might be made, but that would call for more of your valuable space than I am bold enough to expect. I hope, however, that the three salient points I have dwelt upon may have the consideration of those commercially interested in Aviation, and that my remarks may be of some practical assistance.

October 15.

"UNDERWRITER"

THE NEW AIR COUNCIL

THE *London Gazette* of October 19, announced that the King had been pleased by and with the advice of his Privy Council to order that the Air Council shall consist of the following members:—

- One of His Majesty's principal Secretaries of State, who shall be President of the Air Council.
- The Parliamentary Under-Secretary of State for Air.
- The Chief of the Air Staff.
- The Controller-General of Civil Aviation.
- The Director-General of Supply and Research; and
- The Secretary of the Air Ministry.

The Chief of the Air Staff is to be appointed by the King, but all the other members of the Council are to be appointed

by the Secretary of State, who may also appoint additional members, but not more than two. The Secretary of State is responsible to Parliament for the Council, and is to delegate to the other members their various duties.

When the Air Council was established in January, 1918, the Secretary of State, the Parliamentary Under-Secretary, and the Chief of the Air Staff were appointed members, but the other members were: The Deputy Chief of the Air Staff, the Master-General of Personnel, the Director-General of Aircraft Production in the Ministry of Munitions, the Comptroller-General of Equipment, the Administrator of Works and Buildings, and two additional members. Later the Deputy-Chief of the Air Staff ceased to be a member of the Council.

Death of Colonel Massy

COL. H. S. MASSY, C.B., of Grantstown Hall, Tipperary, late Commanding 19th Bengal Lancers and General Staff, India, who died at Sandgate, Kent, on October 10, will be remembered as one of the founders of the Aerial League in 1909. Col. Massy, who did a great deal to awaken public interest in military aviation in this country, had had distinguished war services, including the Afghan War and the Yowaki, Burmese, Chin Lushai, Miranzai, N.W. Frontier, and Tirah Expeditions. He served as A.A.G., India, in 1904-6, and rejoined for the late War, serving under the War Office. He was mentioned in dispatches many times.

Aeroplanes for Poland Stopped

In spite of the clause of the Peace Treaty which states

that navigation on the Kiel Canal is entirely free, the Germans appear to have stopped a Dutch steamer, bound for Dantzig at the Holtzenau Lock and ordered the captain to either return to Rotterdam or discharge cargo. It appears that the cargo consists mainly of American tinned beef for the Polish Army with two English (? American) aeroplanes and three machine guns.

A Seaplane Honeymoon in Peru

UP-TO-DATE ideas prevail in the matter of weddings at Lima, Peru, evidently, as it is announced that after the marriage on October 12, of Major Sison, an air officer, attached to the Peruvian War Ministry, and Señorita Rosita Porras, a niece of the former Chancellor, the bride and bridegroom started on their honeymoon in a seaplane, bound for Ancon.

AIRISMS FROM THE FOUR WINDS

WITHOUT figures it is difficult for the man in the street to really appreciate happenings in events which, appealing to him very directly, yet leave but a very hazy idea of results. One void in this respect is partially filled by information just issued by the London County Council in which the air raids during the War are dealt with. According to this, 524 persons were killed, 1,264 injured, and direct damage was done to property to the amount of £2,042,000.

In the metropolitan area 270 incendiary bombs were dropped and 52 fires caused in the county. Whilst the firemen were at work following a raid on December 18, 1917, the Germans dropped bombs again and killed two firemen.

Attending calls during the air raid period the firemen travelled 12,320 miles.

One bomb in 1917 demolished the greater part of four four-storey dwellings in Albany Road, Camberwell, and seriously damaged 12 others.

This brief summary is sufficiently convincing to suggest further details being made available.

AN old idea appears to have been tried by the Pretoria Government, to judge by a message from Johannesburg. This states that with a view to producing rain by dropping dust on clouds an Avro aeroplane ascended to a height of 5,000 ft., but the dust failed to cause a downpour. Further experiments are to be tried.

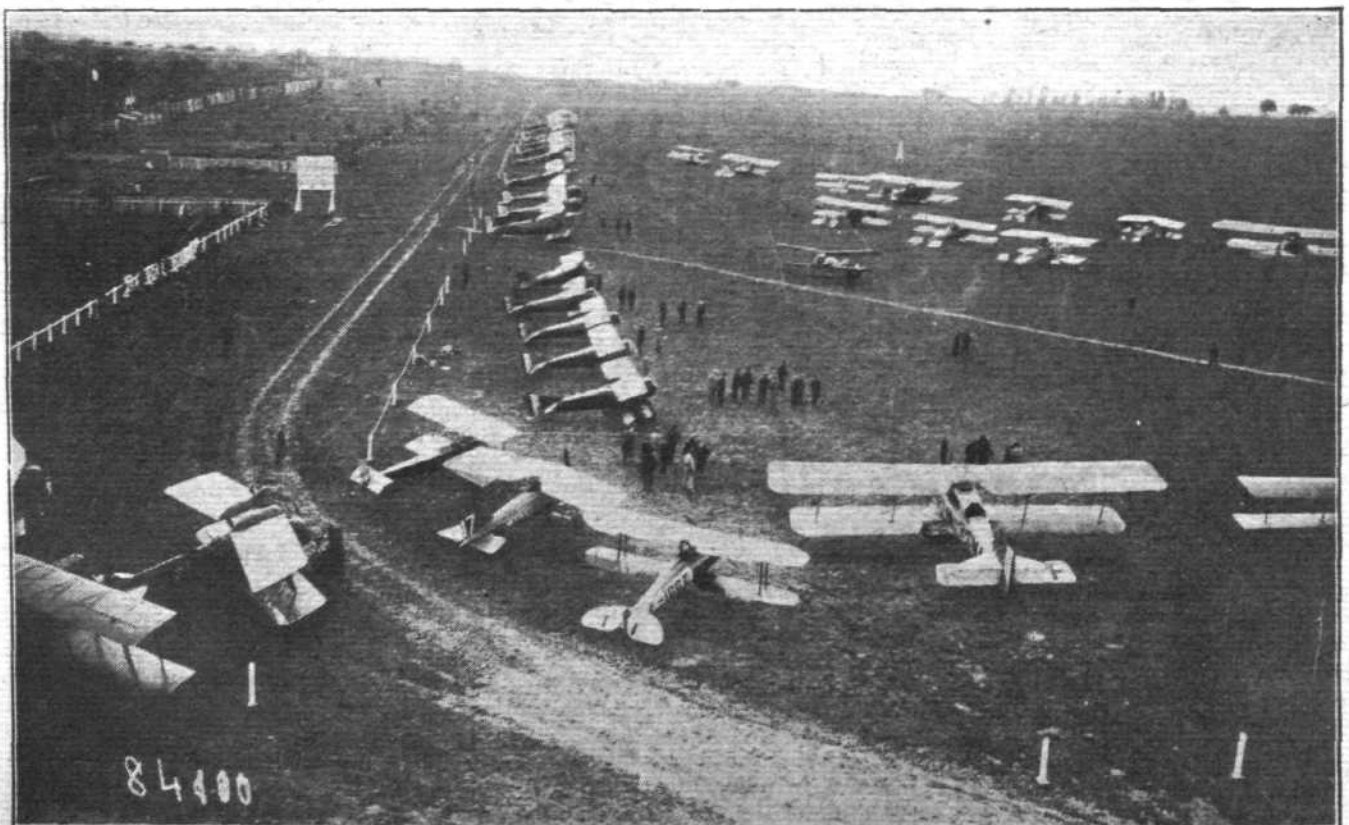
IN France aviation has undoubtedly taken hold of the imagination of the people far beyond anything that the public here can visualise. The Buc meeting the other day was quite an object lesson in marking the popularity to which flying has attained across the Channel. That we are not biased in this view the following short pen picture from a lay writer dealing with events in France will witness: "Everybody flocked out during the days on which the fête was held to witness the marvellous exploits—machines flying through the air at nearly 200 miles an hour, circling, gliding, falling, looping the loop, performing unimaginable feats which demonstrated the perfect control of the pilots. We knew in a vague way of the progress of aviation, but the

contrast between this show and the pre-War meetings, when the machines might or might not go up, according to whether the conditions were favourable or not, was amazing. Special motor-buses took out the crowds to the racecourse, and on one day alone 100,000 francs was taken at the gates. Aviation promises to become as popular a sport in France as horse racing—or as football in England."

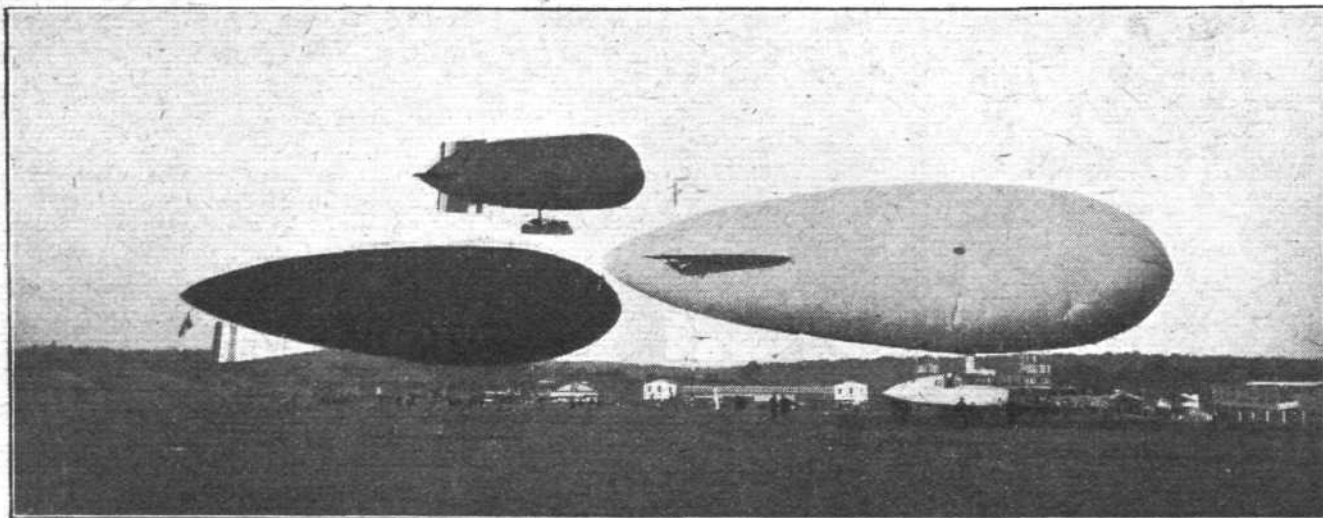
WOULD it were so here—but that will come in due course. Further, those "behind" aviation with our neighbours are not slow in laying hold of current doings to put in a good word for the great new art. During the Buc meeting the ugly railway smash at Houilles occurred, and at once a French journalist pounced upon the smash to point out the safety of aviation, as exemplified in the faultless flying during the whole of the Buc meeting, when contrasted with this railway calamity with its frightful loss of life. And there's a great deal in it, moreover.

THAT "new giant aeroplane" emanating from the Zeppelin Airship Company's works, which according to the daily press is to carry on a regular service between Germany and America almost immediately, is giving rise to all sorts of possible complications. Berlin reports to the *Paris New York Herald* state that the handing over of this craft has been demanded by the representatives of the Inter-Allied Disarmament Committee and refused by the Zep. Co. The latter's contention is that Germany is allowed to retain all aircraft built six months after the signing of the Peace Treaty and that this new plane fills the bill in that respect. So that one wonders what will be the next move. Anyway, if the Zep. Co. have achieved what is claimed for them, why in the interests of the great cause all we can say is more power to their elbow and may they prove it or enable our people to do it for them.

It was a happy idea to bring over from Paris by aeroplane the other day the replica of the colours of the 61st French Regiment—42nd Infantry Division—of the French Army, for exhibition with the 75 mm. gun which was already, through



THE BUC AVIATION MEETING : A general view of the aeroplanes on the ground which took part



THE BUC AVIATION MEETING : The two Zodiacs and the Astra with the hangars, etc., in background

the French War Office, on view at the Imperial War Museum, in commemoration of the united Services of the French and British Armies during the War. The flag was brought over *via* the air by Col. Marie, of the 61st Regiment, and the formal presentation was made at the Office of Works by General Vicomte de la Panouse, Military Attaché of the French Embassy.

The affair was quite an imposing and interesting business. Col. Marie said that the flag was embroidered by the wives of officers and non-commissioned officers of the 61st Regiment, and was intended especially to commemorate the collaboration of the French and British armies on August 8, 1918, at the Battle of Amiens, when the First Army of France and the British Fourth Army began their joint offensive. The 61st Regiment was awarded the colours of the Croix de Guerre, and on several occasions received the highest appreciation of the Commanders-in-Chief.

The colours were received by Sir Alfred Mond, First Commissioner of Works and chairman of the committee of the Imperial War Museum. There were also present Sir Martin Conway, M.P., honorary Director-General, and Major C. ffoulkes, secretary and curator of the Museum.

In the new erotic move of Gabriel D'Annunzio to create more complications in Italian affairs, his methods appear to be worthy of a more reliable objective, as he has not failed to include some thirty aeroplanes in the equipment which he claims to have at his command to support 6,000 fine "shock" troops, in addition to one Dreadnought, two cruisers, five destroyers and about 10 smaller craft. This would appear to be a case in which imagination has gone a bit too far once again.

PRESUMABLY fashions for the gentler—or is it sterner now?—sex change so rapidly that it has been found advisable for the Galeries Lafayette to bring over their

dress models daily by aeroplane from Paris to London. To carry it a step further the London house ought to supply each purchaser of these "creations" with conveyance by air to their home so that they may get into their new acquisition before it has passed into the stage of old fashion.

DAILY paper item:

"Miss Lily St. John (Mrs. L. Gran), who made a great success in "The Naughty Princess," which opened on Thursday at the Adelphi Theatre, has entered a petition for divorce from her husband, Major Tryggve Gran, the Norwegian explorer-airman. The marriage took place in 1918.

"Before the petition is heard the court is to consider a question of domicile.

"Major Gran, who was a lieutenant in the Norwegian Navy, was the first airman to fly across the North Sea. In July, 1914, he flew from Cruden Bay, Aberdeenshire, to Norway without a stop. Joining the Royal Flying Corps soon after the War broke out, he helped defend London during the air raids. He took part in Capt. Scott's last expedition to the Antarctic."

Such is Fame!

THE Democratic National Committee of U.S.A. have appointed an official aviator. His first duties will consist of distributing political campaign literature in New York, Pennsylvania and New Jersey. Although the plane has been used in England in connection with elections this is the first appointment recorded of an official aviator to a political party.

THE Handley Page Transport, Ltd., have undertaken to deliver a daily supply of special London bread to an invalid located in Paris. It has been necessary to procure an export licence from the Board of Trade, and the first loaf has been duly delivered. The price of that loaf must be at least 1s. 5½d.

ROYAL AERONAUTICAL SOCIETY NOTICES



Lectures.—Maj.-Gen. Sir W. S. Brancker, K.C.B., will preside at the meeting at the Royal Society of Arts on Thursday, October 21, at 5.30 p.m. Abstracts of two papers will be read: "A Comparison of the Flying Qualities of Single and Twin-Engined Aeroplanes," by Squadron-Leader R. M. Hill, and "Night Flying," by Major Cecil Baker.

The next meeting will take place on November 4, when Sir Humphrey Rolleston, K.C.B., M.D., F.R.C.P., will preside at Wing Commander M. Flack's paper on "The Human Machine in Relation to Flying."

Annual Dinner.—The Annual Dinner will take place between November 12 and 19, at the Connaught Rooms, Great Queen Street, Kingsway. It is anticipated that the price of tickets,

exclusive of wines, will be one guinea. Members are invited to bring guests.

Library.—The use of the Library has been granted to the Faraday Society for the purpose of holding a meeting at 5 p.m. on October 28, so that it will not be available for the use of Members.

Official Abbreviations.—The Society has been informed by the Home Office that it is now authorised to adopt the use of the prefix "Royal" in the abbreviations for Fellows and Associate Fellows. These Members are therefore entitled to use the letters "F.R.Ae.S." and "A.F.R.Ae.S." respectively after their names, and these forms will supersede those previously used in all official communications.

W. LOCKWOOD MARSH,
Secretary

Civil Aviation in Austria

ALTHOUGH there is practically no civilian flying in Austria at the present time, the possibilities are not being lost sight of. As a matter of fact several landing grounds are being

prepared and others are already available at Linz, Salzburg, Innsbruck, Graz, Wels, Steyr, etc. It is hoped, when the conditions of the Peace Treaty permit, that the North German Lloyd group will commence to run some services.

AIR MINISTRY NOTICES

(No. 107) Royal Navy Wireless Direction Finding Stations

1. AIRCRAFT may use the Wireless Direction Finding Stations operated by the Royal Navy, under the conditions laid down for the use of these stations by the Mercantile Marine, in Admiralty "Notice to Mariners," No. 524, of March 25, 1920.

The following stations are established in United Kingdom:—

Station.	Wave Length.	Call Sign.	Lat. N.	Long. W.
Amlwch (a) ...	450 metres	B X V	53° 24'	4° 18'
Berwick ...		B V G	55° 42'	1° 54'
Carnsore ...		B V Z	52° 12'	6° 21'
Flamborough ...		B V N	54° 07'	0° 05'
Larne ...		B X J	54° 51'	5° 48'
Lizard ...		B V Y	49° 59'	5° 12'
Peterhead ...	600 metres	B V L	57° 34'	1° 49'
Rhyl (a) ...		B Z W	53° 18'	3° 29'
Seaview (b) (Malin Head)		B X K	55° 22'	7° 19'

Note—

(a) Rhyl is not fitted with transmitting apparatus, and is controlled by Amlwch.

(b) Seaview has no transmitting apparatus, and is controlled by Malin Head (G.M.H.), which keeps watch on 600 metres.

2. The actual procedure to be adopted by aircraft requiring bearings will depend upon what stations are concerned. It should be observed that if the stations to be called do not all keep watch on the same wave (e.g., Malin Head and Larne), bearings should be asked for separately. If, on the other hand the stations to be called all keep watch on the same wave (e.g., Lizard and Carnsore), they should be called up together, and the bearings taken in one operation. If, however, two or more stations are linked by special land lines (e.g., Amlwch and Rhyl) only one of them should be called up. In such cases, however, the aircraft must specify in the preliminary signal the D.F. stations which are required to supply bearings.

3. The following abbreviations are to be used:—

Signal.	Meaning.
QTE ? ...	"What is my true bearing from you (or from —) ?"
QTE ...	"Your true bearing from me (or from —) was — degree."

4. The aircraft calls the station or stations on the appropriate wave, making "QTE ?" in conjunction, if necessary, with the call signals of the stations from which bearings are required; and also (if the call is NOT made on 450 metres) by the figures "450," signifying that the aircraft will shift to 450 metres for the taking of the bearing. The aircraft then awaits instructions.

5. The station or stations called then make the necessary arrangements, and, when ready, answer in alphabetical order of their call signals (if more than one was originally called), and make "K" (go on) preceded by "450" if 450 had been made in the original call.

6. On receiving "K," the aircraft, having shifted transmitting wave to 450 metres (if not already done), then makes her own call signal for 45 seconds, and awaits the result.

7. The station or stations then reply (in alphabetical order if more than one) either asking the aircraft to repeat (?) or giving the result. The result is given by the signal QTE, followed, as necessary, by the call signal and by a group of three figures (000 to 359) indicating the true bearing from 0° to 359° of the aircraft from the station. Several bearings

can be combined into one message, each bearing immediately following the call signal of the station which took it. The time of handing in is always expressed in Greenwich mean time for all messages giving bearings to aircraft.

8. The aircraft, on receiving the result, acknowledges receipt in the ordinary way, and makes the "end of work" sign. This sign is then repeated by the stations concerned. It is important that the "end of work" sign should not be omitted, since it not only indicates that the operation is finished, but it also shows that all concerned are about to resume watch on their normal wave.

9. Further information on this subject is contained in Admiralty "Notices to Mariners," Nos. 363 of February 25, 1920; 524 of March 25, 1920, and 838 of May 22, 1920, which should be consulted.

10. The Admiralty "Notices" may be obtained from the Admiralty Agent, J. D. Potter, 145, Minories, London, E. 1.

11. Notice to Airmen, No. 64, of June 4, 1920, and 103 of September 30 are hereby cancelled.

[Examples are given of messages referred to in paras. 4, 5, 6 and 7, but these are not reproduced.—Ed.]

(No. 106) Aerodromes for Civil Use

1. AERODROMES, Seaplane Stations and landing grounds open to civil aviation in the United Kingdom, and the location of Service and Civil Stations which are available to civil aircraft in case of emergency only, are shown in lists (A to C) which have been corrected to October 1, 1920.

[Owing to pressure upon our space, it is impossible to publish this list in full, but copies can be obtained by those requiring them from the Air Ministry.—Ed.]

2. The lists are classified as follows, each aerodrome or landing ground being given in alphabetical order:—

LIST A.—Government-owned Aerodromes Available for Civil Flying, and at which Accommodation Exists.—(a) Civil aerodromes. (b) Service stations.

LIST B. Aerodromes Available for Civil Machines in Emergency only.—(a) Permanent service stations. (b) Stations temporarily retained for service purposes. (c) Civil stations.

LIST C. Licensed Civil Aerodromes.—(a) Civil aerodromes licensed for all types. (b) Civil aerodromes, licensed as "Suitable for Avro 504 K and similar types of aircraft only." (Except in very few instances, accommodation does not exist. The licences have been issued for limited periods only. Foreshore aerodromes are not included.)

3. Customs Stations.—The only aerodromes at which Customs facilities exist at present are Croydon, Cricklewood and Lympne.

4. It should be clearly understood that these lists are purely provisional and are subject to alteration from time to time. Such amendments are published fortnightly as "Notices to Airmen."

5. In those cases in which it is stated that accommodation does not exist, no facilities other than the actual landing grounds are available.

6. No guarantee can be given at the present time that personnel to handle aircraft is available either at the Service stations or at the civil licensed aerodromes.

7. Notice to Airmen Nos. 81, 86, 93, and 97 of the year 1920 are hereby cancelled.

(No. 108).—Flamborough Wireless Direction Finding Station

WITH reference to Notice to Airmen, No. 107 of October 11, 1920, the Wireless Direction Finding Station at Flamborough (Lat. 54° 07' N., Long. 0° 05' W.) is temporarily out of action until further notice. Authority: Admiralty Notice to Mariners No. 1495, dated September 20, 1920.

NOTICE TO GROUND ENGINEERS

(No. 12).—Avro 504 and 536 Type Machines: Upper Shoe Fitting for Engine Diagonal Strut (Part 100)

WITH reference to Notice to Ground Engineers No. 7 of September 2, 1920, further investigation has revealed that the above-mentioned fitting has shown such signs of weakness that it cannot now be regarded as reliable from the point of view of the airworthiness of the aircraft.

Owners of all British registered aircraft concerned have therefore been notified that the certificates of airworthiness of the machines in question will be suspended unless the following action be taken:—

1. Close inspection of the fitting must be made forthwith.

2. In cases where the part is found to have weakened it must be replaced immediately, and before any further flying takes place, by a new fitting as shown on Drawing A.D.2988.

3. In cases where no sign of weakness has yet shown itself the above replacement need not be made for a period of 3 months from the date of this notice or until the aircraft requires overhaul, whichever period is the shorter, provided that within a week of the date of this notice a reinforcing strap as shown on Drawing A.D.2996 is fitted over the existing fitting.

Ground engineers are reminded that they cannot issue a daily certificate of fitness to fly in the case of aircraft for which a certificate of airworthiness has been suspended.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN OCTOBER 10 AND OCTOBER 16, INCLUSIVE

Route	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and No. (in brackets) of Machines Flying
			Mails	Goods				
Croydon-Paris ...	39	56	14	24	38	h. m. 2 41	Breguet F-CMAG (1h. 47m.)	A.9 (3), A.16 (4), A.18 (2), B. (3), Bt. (1), Fa. (1), G. (2), N. (2), P. (1), Sp. (1), W. (2).
Paris-Croydon ...	40	82	6	21	37	2 41	Airco 16 G-EAQS (1h. 55m.)	A.9 (4), A.16 (3), A.18 (2), B. (3), Bt. (1), Fa. (1), G. (1), N. (3), P. (1), Sp. (1), W. (2).
Cricklewood-Paris ...	6	19	—	5	6	3 26	H.P. G-EATH (3h. 12m.) ...	H.P. (5).
Paris-Cricklewood ...	4	24	—	2	4	3 6	H.P. G-EATH (2h. 57m.) ...	H.P. (4).
Croydon-Amsterdam ...	8	2	—	7	4	2 32	Airco 18 G-EAUF (2h. 20m.)	A.9 (5), A.18 (1).
Amsterdam-Croydon ...	4	3	2	1	3	3 57	Airco 16 G-EALM (3h. 17m.)	A.9 (3), A.16 (1).
Cricklewood-Amsterdam ...	6	2	5	4	6	2 23	Airco 9 G-EAUN (2h. 2m.)...	A.4 (1), A.9 (2).
Amsterdam-Cricklewood ...	6	3	4	2	6	3 49	Airco 4 G-EAVL (2h. 58m.)	A.4 (1), A.9 (3).
Croydon-Brussels ...	1	—	—	—	—	—	—	A.9 (1).
Brussels-Croydon ...	1	—	—	—	—	2 25	—	A.16 (1).
Cricklewood-Brussels ...	10	13	5	7	9	2 32	Airco 9 G-EAUN (2h. 2m.)...	A.4 (6), A.9 (3).
Brussels-Cricklewood ...	10	6	2	3	8	2 40	Airco 9 G-EAUP (2h. 5m.)...	A.4 (5), A.9 (4), Av. (1).
Totals for week ...	135	210	38	76	121			

* Not including "private" flights.

† Including certain journeys when stops were made *en route*.

A.4 = Airco 4. A.9 = Airco 9 (etc.).

Av. = Avro.

B. = Breguet.

Bt. = B.A.T.

F. = Fokker.

Fa. = Farman F.50. G. = Goliath Farman.

H.P. = Handley Page.

N. = Nieuport.

P. = Potez.

Sa. = Salmson.

Sp. = Spad. V. = Vickers Vimy. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Air Post of Banks; Air Transport and Travel; Co. des Grandes Expresses Aériennes; Handley Page Transport, Ltd.; Instone Air Line; Koninklijke Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

Air Work in Mesopotamia

It was stated in the *communiqué* issued by the War Office on October 13: "On October 10 our aeroplanes bombed the hostile quarters in Samawa town."

In the *communiqué* of October 15 it was stated: "On October 11 our aeroplanes again bombed Samawa and its neighbourhood, and also carried out a raid against the camp of the rebel sheikh who was responsible for the firing on our ships at Nasiriyeh. It is reported that in the air raid on October 8 our aeroplanes attacked and inflicted serious losses on a strong force which had concentrated on the Abbara Canal for the purpose of exacting vengeance from the tribes who had submitted to us."

In the *communiqué* of October 16 it was stated: "Our operations [on the Jarjiya Canal] were greatly assisted by low-flying aeroplanes, who effectively bombed and machine-gunned the Arabs as they withdrew over the bridge."

"Baghdad Area.—Insurgent camps on the right bank of the Euphrates west of Mahmudie were effectively bombed by our aeroplanes on the 12th."

France's Policy in the Air

SPEAKING at a banquet held on October 9, M. Flandin, Under-Secretary of State for Aeronautics, outlined the future air policy of France. He advocated the continuation of close working between the civil and military organisations, and went on to emphasise that efforts should be concentrated upon the improvement of the technical side of aviation rather than upon the increase of the *matériel*.

While he expressed the opinion that Germany was not to be feared in regard to the numbers of her aeroplanes, he said that her experimental activities must be emulated; new laboratories should be installed, makers should be formed into groups, so as to reduce prices by co-operative buying, and aeronautical engineers be given special encouragement in their work.

"We must attempt to hold the supremacy in the air," he said, "as England holds it on the sea, for a nation that controls the means of transport is mistress of the world."

Big Air Station for Copenhagen

WORD comes from Copenhagen that the Danish Budget Committee has granted the necessary one and a half million kroner for the purchase of 320 hectares of land at Kastrup, just south of Copenhagen, for the purpose of constructing a landing place for aeroplanes and hydroplanes.

Cables by Aeroplane

DURING the recent strike of the Dutch Postal employees, urgent cables for the United States and other places were brought from Amsterdam to London by the Handley Page Air Mail Service and transmitted by cable from London.

Antwerp Aerodrome Closed

HANDLEY PAGE TRANSPORT, LTD., operating the Royal Air Mail to Belgium, report that owing to the temporary closing of the Antwerp Aerodrome they are compelled to suspend the landing of passengers and goods at Antwerp *via* Brussels. Passengers and freight will, however, continue to be carried daily from Cricklewood to Brussels by air, and in co-operation with the Belgian State Railways will be conveyed free of cost to the Brussels Central Railway Station, where they may now be booked to any part of Belgium, the Belgian railways being once more on a pre-War basis.

The Bolshevik's Mistake

WRITING of the capture of Alexandrovsk by General Wrangel's Army, the *Daily Telegraph* correspondent states, as an instance of the fact that the Bolshevik organisation on this front must have suffered greatly, that "no fewer than three enemy aeroplanes landed on September 21 at the Alexandrovsk aerodrome with despatches for the headquarters of the thirteenth Red army. Two of these machines had come from Berislavl, on the opposite bank of the Dnieper to Khahovka. Whilst I was talking to the General another Bolshevik airman, who had descended at the aerodrome from Khahovska half an hour previously, was introduced and examined."

South American Aviation Progress

A COMPANY has been formed in the United States to carry the mails by air between Chile and U.S.A. The service will fly from Columbia, and will be extended along the whole of the Chilean coast.

A School of Aviation in Valparaiso

A SUM of 565,000 dollars has been raised by a committee, aided by a Government grant, for the purpose of founding a civil school of aviation in Valparaiso. The aerodrome is to be complete with hangars and workshops. Suitable ground to the extent of 1,250,000 sq. metres has been secured, and part of it will be laid out for football matches and other outdoor sports.

THE ROYAL AIR FORCE

London Gazette, October 2

Flying Branch

Lieut. (Act. Capt.) H. S. Marten-Smith relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain the rank of Capt. (*Gazette*, July 18, 1919, to stand).

Lieut. (Hon. Capt.) J. R. Stewart relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain the rank of Capt. (*Gazette*, April 4, 1919, to stand).

The following relinquish their R.A.F. commns. on appt. to the T.F., and are permitted to retain their rank:—Lieut. C. L. Childs; July 7 (*Gazette*, Sept. 14, to stand). Sec. Lieut. C. Wright (*Gazette*, April 1, 1919, to stand).

Transferred to Unemployed List.—Sec. Lieut. W. A. Shaw; March 6, 1919. Sec. Lieut. C. B. Parker; Sept. 13, 1919. Sec. Lieut. G. W. Watkins; Sept. 15, 1919. Sec. Lieut. F. A. Starling; Sept. 24, 1919. Sec. Lieut. H. N. Jubb; Sec. Lieut. H. Sincock; Oct. 10, 1919. Sec. Lieut. H. V. Webster; Oct. 11, 1919. Sec. Lieut. G. Cotton-Stapleton; Oct. 12, 1919.

Administrative Branch

F. A. Mansfield (temp. Sec. Lieut., E. Kent R.) is granted a temp. commn. as Sec. Lieut.; Sept. 8, 1918 (substituted for *Gazette*, Oct. 8, 1918, wherein this officer was described as F. A. Mansfield (temp. Sec. Lieut., R. West Kent R.).

Lieut. A. H. Clegg relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain his rank (*Gazette*, July 29, 1919, to stand).

Sec. Lieut. J. G. Renshaw is transf'd. to unempld. list; Sept. 12, 1919. The notification in *Gazette*, May 11, concerning Flying Officer G. Oliver, is cancelled.

Technical Branch

Transferred to Unemployed List.—Sec. Lieut. H. H. Miller; Sept. 25, 1919. Sec. Lieut. J. K. Thomson; Oct. 11, 1919.

Memoranda

Hon. Sec. B. Meddings relinquishes his hon. R.A.F. commn.; Sept. 21.

London Gazette, October 5

Permanent Commissions

Flying Offr. C. H. Arnison is placed on the Retd. List owing to injuries, and is permitted to retain his rank (Oct. 6).

Flying Branch

The following Pilot Offrs. to be Flying Offrs.:—H. Mottershaw (since demobilised), Nov. 4, 1919; G. Winstanley (since demobilised), March 7. Flight Lieut. V. A. H. Robeson, M.C., is placed on the half-pay list (Scale B) from Nov. 8, 1919, to May 31. Lieut. P. C. Taylor relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain his rank.

The following are transferred to Unemployed List.—Sec. Lieut. H. Grieve; Feb. 4, 1919. Lieut. A. C. Guyer; May 3, 1919. Sec. Lieut. H. Bradbury; Sept. 23, 1919. Sec. Lieut. J. R. Gaze, Sec. Lieut. L. McCall; Sept. 24, 1919. Sec. Lieut. N. H. Wallace; Sept. 29, 1919. Lieut. E. Colvill; Oct. 17, 1919 (substituted for notification in *Gazette* March 2). Sec. Lieut. W. H. Spencer; Oct. 21, 1919. Sec. Lieut. J. P. Henchle; Aug. 7. Lieut. L. C. Galloway relinquishes his commn., being physically unsuited for the duties of a Pilot and Observer, and is permitted to retain his rank; June 16, 1919 (substituted for *Gazette*, July 22, 1919). Lieut. V. T. Kelly relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank; March 12 (substituted for *Gazette*, Feb. 6).

The following Sec. Lieuts. relinquish their commns. on account of ill-health caused by wounds, and are permitted to retain their rank:—G. L. P. Drummond (caused by wounds); Sept. 28. C. D. Heenan (contracted on active service); Oct. 3.

The notification in *Gazette* Aug. 20 concerning Sec. Lieut. J. P. Henchle is cancelled.

Administrative Branch

Flying Officer (actg. Flight Lieut.) H. G. Jones to be actg. Sqdn. Leader whilst employed as Sqdn. Leader; Sept. 18. Flying Officer C. L. P. Mullany to be actg. Flight Lieut. whilst employed as Flight Lieut.; Sept. 18. Sec.

Lieut. D. J. Evans is graded for purposes of pay and allice. as Lieut. whilst employed as Lieut. from May 1, 1919, to Aug. 5, 1919.

The following are transferred to Unemployed List.—Sec. Lieut. C. D. Davis; May 29, 1919. Sec. Lieut. E. C. St. A. Newby; Oct. 10, 1919. Sec. Lieut. B. U. Wood; Oct. 14, 1919. Lieut. T. C. Noble; July 12.

Technical Branch

Sec. Lieut. F. C. P. Roberts to be Lieut., Grade B; May 25, 1919. Pilot Officer J. W. Brittain to be Flying Officer, without pay and allice. of that rank; Dec. 3, 1919 (since demobilised).

Sec. Lieut. E. G. Grafton is transferred to Unemployed List; Sept. 9, 1919.

Memoranda

(Then follow the names of 17 Cadets granted hon. commns. as Sec. Lieuts.) Sec. Lieut. A. E. Dick relinquishes his commn. on ceasing to be empld., and is permitted to retain his rank; March 28, 1919.

Hon. Sec. Lieut. E. Harrison relinquishes his hon. R.A.F. commn. The notification in the *Gazette* of March 23 concerning Cadet 37089 H. F. Gwyer is cancelled.

London Gazette, October 8.

Permanent Commissions

The following are granted permanent commns. in the ranks stated.—Flt. Lieut. T. Gran, M.C.; Sept. 22. Flying Officer C. W. Attwood; Aug. 1, 1919. Wing Comdr. J. W. O. Dalglish, O.B.E., is placed on the Retired List, on account of ill-health contracted on active service, and is permitted to retain his rank; Oct. 9.

Obsvr. Officer the Hon. M. H. R. Knatchbull, M.C., is placed on the Retired List on account of ill-health contracted on active service, and is granted the rank of Flight Lieut.; Oct. 1 (substituted for *Gazette*, Sept. 28).

The Christian names of Flight Lieut. Reginald Edgar Gilbert Fulljames, M.C., are as now stated, and not as in *Gazette*, Oct. 28, 1919.

Royal Air Force Medical Service

The following are granted permanent commns. in the ranks stated.—Wing Comdr. D. Muuro, C.I.E., M.B.; Dec. 4, 1919. Sqdn. Ldr. W. Tyrrell, D.S.O., M.C., M.B.; Oct. 1.

Short Service Commissions

The following officers are granted short service commns. in the ranks stated, with effect from the dates indicated, retaining their seniority in the substantive rank last held by them prior to the grant of this commn., except where otherwise stated:—

Squadron Leader.—C. Draper, D.S.C.; Sept. 27. *Flying Officers.*—J. Buckley; Oct. 4. A. C. Heaven, M.C.; Sept. 30. H. B. Pett, M.C.; Oct. 4. W. J. Rivett-Carnac, M.B.E.; Oct. 1.

Observer Officer.—F. Thomasson, D.F.C., M.M.; Oct. 24, 1919 (substituted for *Gazette* of that date).

Flying Officers (from Pilot Officers) with Seniority of the Dates Indicated.—D. L. Blackford; Sept. 13 (substituted for *Gazette*, Oct. 1). R. W. F. Dunning Oct. 6. R. N. Hesketh; Aug. 26 (substituted for *Gazette*, Sept. 14). C. E. Usher-Somers; Sept. 29. L. T. Wilson; Sept. 29.

The name of Flight Lieut. C. H. B. Thompson (Med.) is as now stated, not as in *Gazette*, July 13.

Flying Branch

Sec. Lieut. (Hon. Lieut.) H. B. C. Nicholls relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain rank of Lieut.

Sec. Lieut. T. M. Bartlett relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain his rank.

Transferred to Unemployed List.—Sec. Lieut. M. Wynn-Parry; Apr. 13, 1919. Sec. Lieut. K. V. Hill; June 7, 1919. Sec. Lieut. J. A. Norris; July 23, 1919. Sec. Lieut. F. Hopwood, Sec. Lieut. A. A. Simpson; Sept. 15, 1919. Sec. Lieut. W. R. H. Porter; Sept. 16, 1919. Sec. Lieut. F. W. Aldridge; Sept. 24, 1919. Sec. Lieut. R. D. Hughes; Oct. 21, 1919. Sec. Lieut. G. E. Hughes; Sept. 30.

Lieut. R. K. Mackenzie relinquishes his commn. on account of ill-health and is permitted to retain his rank; Oct. 12, 1918 (substituted for *Gazettes*, Dec. 9, 1919, and Aug. 10).

Airships Over London

DURING last week Londoners had several good views of two of our rigid airships. On October 11 the R. 32 cruised overhead during the arrival of the Prince of Wales; on the following day both the R. 32 and the R. 33 were cruising above the city while the Air Conference was sitting, and the latter was also seen on the 13th inst. (then having been aloft for 30 hours), and escorted the train taking the Conference visitors to Waddon.

An Aircraft Carrier Salvaged

THE famous Isle of Man steamer *Ben-My-Chree*, which did duty as an aircraft carrier during the war and was sunk by the Turks off the Asia Minor coast on January 11, 1917, has been salvaged. The Turks claimed that they had sunk a British cruiser of the Juno type. The vessel has been towed into the Dardanelles but it is not known whether she can be rendered useful for service again.

An Aerodrome for Dundee

It appears that the Dundee Corporation is not only alive to the importance of civil aviation, but is taking steps to be prepared when the time arrives for actual operations. It has under consideration a proposal to utilise ground at the Western Esplanade for an aerodrome a purpose for which experts have said it is suitable.

A Fast Amsterdam-London Trip

THE Dutch mail carried by one of the machines on the H.P. service, piloted by Maj. Foote, reached Cricklewood on October 18 from Amsterdam in 1 hr. 50 mins., the distance of 265 miles being covered at an average speed of 150 miles an hour. This is a new speed "record" for the journey.

England-Holland Mail to be Suspended

As briefly indicated in our last issue it is likely that the air mail service between Holland and Cricklewood will be discontinued at the end of this month, although a definite decision has not yet been announced. It is pointed out that in the case of the Dutch air mails it is almost impossible owing to the prevalence of fogs over the low-lying country and coast, to secure that regularity of delivery which is an essential of a mail service. Experience has shown that frequently the mail from Amsterdam, scheduled to leave at 7.15 a.m., has not departed until 11 a.m.

Import Duties in India

It is stated that aeroplanes and aeroplane engines entering India are now subject to an *ad valorem* duty of 2½ per cent.

Another French Meeting

So successful was the recent meeting at Buc that it has been practically decided to hold another meeting on similar lines, but this time at Villacoublay. It is stated that M. Flandin, Under-Secretary for Aeronautics, has granted the necessary authorisation for it to take place on the 31st inst.

Pegoud's Body to be taken to Paris

THE body of M. Pegoud, the French airman, who was killed on August 31, 1915, in an aerial fight at the front near Belfort, is to be brought to Paris, and interred in the cemetery of Montparnasse, where a monument is to be erected to his memory.

MODEL AEROPLANES

NOTE.—All communications should be addressed to the Model Editor. A stamp should be enclosed for a postal reply

A "Record" Machine

SEVERAL readers have written asking for details of the machine with which I recently created a duration record of 3 mins. 19 secs., and accordingly I show herewith drawings and particulars of it. The details are as full as will be necessary in order that readers may make a replica of it. The drawings contain all the necessary dimensions; and show the machine exactly as I made it, and with the planes in their flying position.

The Main Plane.—The weight of this unit is exactly 1 oz., it is 6½ ins. chord, and 30 ins. span.

The Elevator.—This weighs $\frac{1}{4}$ oz., measuring $10\frac{1}{4}$ ins. span, and $2\frac{1}{4}$ ins. chord. Eighteen gauge piano wire is used for it, and it is made in one continuous length.

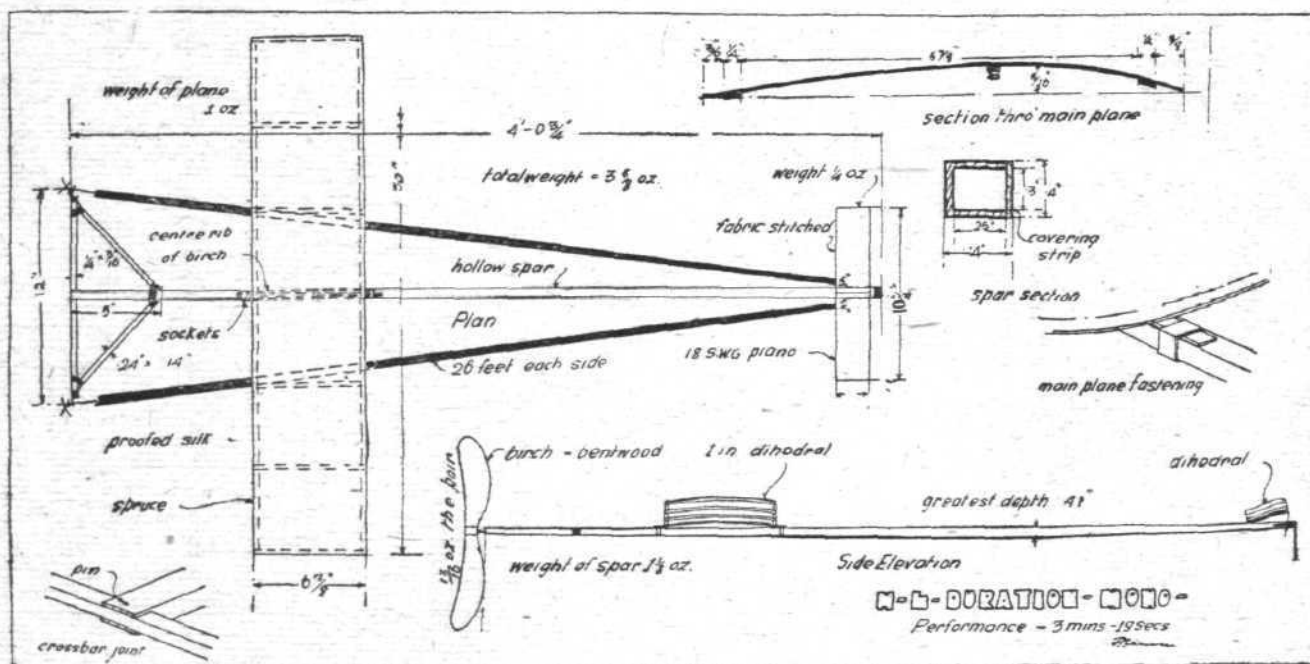
latter ($\frac{1}{4}$ in. strip) being used for each screw. The skeins are loosely attached. The centre of gravity of the machine is about $\frac{1}{2}$ in. forward of the main plane. Each screw in the flight previously referred to was wound 1,540, but the skeins had previously been wound to a lesser number, gradually approaching the maximum at each flight. This number should not be given to new rubber at first.

Model Club for Portsmouth

MR. A. E. PURCHES, of 9, Chichester Road, North End, Portsmouth, is anxious to get into touch with any enthusiasts in the district with a view to forming a club.

Replies to Correspondents

B. R. (Shanklin) and W. P. (Shoebury).—We duly forwarded



The Propellers.—The pair together weigh $\frac{13}{10}$ of an oz., this including shafts and the centre tin-straps. They are $11\frac{1}{2}$ ins. diameter, with a pitch angle of 40° . Their pitch is therefore 30.3 ins.

The Propeller Bar.—This is slotted into the main spar in the manner shown, the hollow spar being blocked with a hardwood packing piece at the end to strengthen the joint.

The Main Spar.—This is a hollow spar, 4 ft. 0 $\frac{1}{2}$ ins. long, 4 ins. wide at its greatest width. It is a hollow spar, U section, a thin covering strip of veneer being placed over the open edge of the U to seal it. Its weight, inclusive of the propeller bar, braces, bearings, plane sockets and front elastic hooks, is 1 $\frac{1}{2}$ oz. The spar itself weighs barely 1 $\frac{1}{2}$ oz.

The maximum depth of camber should be 2 ins. from the front or leading edge of the main plane, a drawing in section of the plane ribs making the other dimensions clear. The machine weighs 3½ oz. without the rubber, six strands of the

your letters. Write to H. H. G. at 41, Ormiston Road,
London, W.

J. B. C. (Natal).—Many thanks for your most interesting letter, which I hope to deal with later. You certainly seem to have done well, especially in view of the difficulties under which you have been labouring.

O. B. (Ottawa).—Glad you received the book O.K. Thanks also for the book and list you kindly sent.

H. L. (Burnley).—Yes, write at any time you are in difficulty.

M. R. (Cardiff).—We replied direct to your letter.

A. E. P. (Portsmouth).—Many thanks for the photo., which I will endeavour to use at an early date. The machine certainly looks quite practical.

A. H. (Bacup).—Make the motor 3 ft. 9 ins. long. Many thanks for the photos.

The Paris-London-Paris Race

In our report on this race in last week's issue of FLIGHT the name of the Nieuport pilot was given as Lecointe. This was a mistake on the part of a compositor, who consistently substituted Lecointe for the original name, the two names looking very similar when written. Owing to pressure on our time in connection with the Air Conference the mistake was not discovered in time to have the necessary corrections made. The name of the pilot who flew in the Paris-London-Paris race should have been given as Le Comte.

German Hangars for Belgium

A MESSAGE from Brussels states that the Belgian air

service is to receive a batch of 40 large metal hangars from Germany. They comprise some with three bays 22 metres wide, and some with two bays 33 metres wide, and capable of housing the largest machines. It is probable that these hangars will be erected at Liege-Dierset, Tirlemont, Schaffen, Brussels-Haren and Nivelles.

A Hun Secret Engine Store

ACCORDING to the *Freiheit*, a number of new aeroplane motors, valued at over three million marks (£13,300 approximately), which were discovered the other day hidden in a mill near Günzburg (Bavaria), have been confiscated by the Inter-Allied Control Commission.

SIDEWINDS

THE photograph reproduced on this page gives a very good idea of the lay-out of the new factory of Messrs. Naylor Brothers (London), Ltd., at Slough. The site is some 35 acres in extent, adjoining the G.W.R. main line, and it is bounded on the North by the Grand Junction Canal and on the East and West by good main roads. The two main buildings are 600 ft. long by 50 ft. broad, and a double line track runs between them. The offices have been constructed from the wooden buildings purchased on the property, and having been decorated with the varnishes, enamels, paints, etc., for which the firm has become famous, they form a striking example of what can be done to make this class of building weatherproof, durable, and artistic. They form three sides of a rectangle, and are surrounded by pleasant lawns and flower gardens, while the walls are covered with climbing plants and ramblers.



A view from the air of the new factory of Messrs. Naylor Brothers at Slough

THROUGHOUT the whole works the visitor is impressed by the great care taken to ensure not only that the employés shall be enabled to do their work under the most comfortable conditions, but that nothing shall be allowed to interfere with the products being of the highest quality. The machinery, mills, mixers and pan-mills are of the latest type, each self-contained and electrically driven.

As becomes a progressive firm, every effort is being made to ensure a happy and contented staff. Five acres of the site have been set aside for a Sports Ground under the care of a county cricket groundsman, and laid out for cricket, football, tennis, croquet and other games, the whole being surrounded by a track for running and cycling races.

THE Westland machine which was placed first in the Government competition for the small machines was doped with "Cellon."

ON Monday, October 11, the Registered Offices and Secretarial and Accounts Departments of The British Emaillite Co., Ltd., were transferred to 5, Hythe Road, Willesden Junction, N.W. 10, to which address all future communications, should be directed. The 'phone call is Willesden 2346 and 2347.

It is of interest in connection with the award of the judges at the Air Ministry's aeroplane trials at Martlesham Heath, that four out of the five prizes awarded in the Large and Small Aeroplane classes were won by aeroplanes whose engines were fitted with B.T.H. magnetos. In the Large Aeroplane Class, the Napier "Lion" engines in the Handley Page were fitted with B.T.H. magnetos, and in the Small Aeroplane Class the Westland six-seater with Napier "Lion" engine; the Sopwith "Antelope" with Wolsley Hispano "Viper" engine; and the Austin "Kestrel" with Beardmore engine, which won first, second and third prizes, were all fitted with B.T.H. magnetos.

In the Amphibian class the first prize-winner, the Vickers "Viking III" with Napier "Lion" engine, was fitted with B.T.H. magnetos, and the third prize-winner, the Fairey, with Napier "Lion" engine, was similarly fitted.

THE above add to the numerous British flying records established by aeroplanes whose engines were fitted with B.T.H. magnetos, and together with the winning of the first and second prizes at the 1919 and 1920 Aerial Derby at Hendon, prove the B.T.H. magneto to be of high quality, and it is flattering to know that this reliable magneto is all-British in design and construction.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors
The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

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Published October 21, 1920

- 12,513. H. FRYMAN. Signalling apparatus. (151,306.)
- 15,306. G. H. REID. Indicator for attitude of aircraft and position of controls. (151,330.)
- 15,478. J. B. E. GANGLER. Wings or control surfaces. (128,583.)
- 15,493. F. STAFFORD. Airships. (151,343.)
- 15,653. D. J. MOONEY, E. E. BROWN and D. H. EMBY. Metal framework for aircraft. (151,352.)
- 16,583. A. R. HILL and J. RENTON. Landing apparatus. (151,384.)
- 17,078. P. BRADLEY. Coating-compositions for aircraft parts. (151,396.)

APPLIED FOR IN 1920

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- 11,332. SOC. DES MOTEURS Gnome et Rhone. Centrifugal pumps. (142,131.)

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